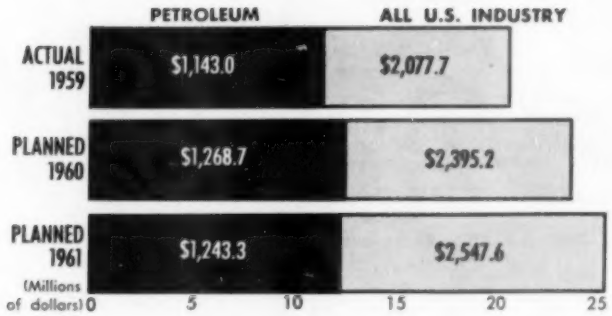
SEPT. 9 1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION



Capital expenditures of U.S. firms abroad are still going up—but oil's outlays are levelling off . . . 11

Soviet oil team ready for U.S. tour 13
Jersey unveils three drilling tools 21
Oil 'find' stirs Sacramento Valley 24
Venezuela gives Texaco a tax break 36
One giant crude still replaces five 41
For refiners: faster chromatography 42
Greaseless car is getting closer 44

UNIV MICROFILMS INC
EDITORIAL DEPT
313 N FIRST ST
ANN ARBOR MICH

Price 50 Cents

ANOTHER MAJOR BREAKTHROUGH FROM DOWELL

FLAC

A new kind of Fluid Loss Additive for Cement that far surpasses anything previously offered

WHAT IT IS. FLAC* is an important new fluid loss control additive for Class A and E neat and Class A bentonite oil well cement systems. Technically, it is a high-molecular-weight, synthetic polymer. It is supplied in the form of a dry powder that is easily mixed into either cement or water.

ADVANTAGES include reliable squeezing or primary cementing—especially in porous, high temperature zones. FLAC is especially useful for permanent type and tubingless completions. Since excess cement can be reversed out before testing, this saves a round trip as well as expensive drilling-out. WOC time is held to a minimum.

WHAT IT DOES. When used in correct concentrations, FLAC drastically reduces fluid loss of the cement slurry over a wide temperature range and at high differential pressures. It is stable at both high and low temperatures and does not affect slurry and set cement adversely. Premature dehydration is prevented and the result is reliable thickening time in squeeze cementing and maximum fill-up in casing cementing.

To give some idea of just how efficiently FLAC reduces fluid loss, here are some representative figures taken from laboratory tests made under simulated well conditions.

These tests were conducted according to API procedures set forth in RP-10B, January, 1960. Slurry was first subjected to appropriate API test schedule in the pressure thickening-time tester. The time interval was equal to that required for slurry placement in a well. Then fluid loss tests were made on the slurry samples in a high-temperature, high-pressure tester. API cement filter screens were used at maximum cementing temperature and at 1,000 psi differential pressure.

Class of Cement	Percent Bentonite	Percent FLAC	Temperature (Degrees F)	API Thickening Time—Hours and Minutes	Fluid Loss at 1000 PSI cc/30 Minutes
A	0	0	113	2:30	800
A	0	1½	113	2:28	35
A	12	0	125	2:30	336
A	12	1½	125	2:40	34
E	0	0	213	1:40	1000
E	0	1	213	2:15	100
E	0	1½	213	2:50	50

AVAILABILITY of FLAC is limited until a new production plant can be put in full scale operation within a few weeks. In the meantime, operators are invited to contact Dowell for test results. In this way, they can take full advantage of material as soon as supplies become adequate. Call, write or wire the nearest Dowell office or station. Or contact Dowell, Tulsa 1, Oklahoma.

Services for the oil industry DOWELL

DIVISION OF THE DOW CHEMICAL COMPANY

Plastic-foam pillow was one of the products made from Sinclair petrochemicals that stockholders saw.

All the Talk's about Sinclair Petrochemicals

Sinclair's continuing petrochemical progress was a prime topic of conversation at the Company's annual meeting of stockholders this year.

- The volume of chemical sales in 1959 doubled that of the previous year, and the 1960 volume to date is even better.
- Sinclair is now the largest producer of paraxylene, the basic raw material for polyester fibers used in the popular wash-and-wear fabrics.
- Sales of the plastic raw material, high purity propylene, first made in this country by Sinclair, are at an all-time high.
- In a joint undertaking with Koppers Company, Inc., a major plant is being built at Houston, Texas to produce styrene monomer, a synthetic rubber and plastics raw material.

Stockholders were told that this rapidly expanding field is "an excellent route for product diversification, and an important new source of profits".

Sinclair

A Great Name in Oil

SINCLAIR OIL CORPORATION • 600 FIFTH AVENUE • NEW YORK 20, N. Y.

Expanding once again . . .

1960

TEX-TUBE'S NEW PIPE MILL NOW ON STREAM!

In 14 short years, Tex-Tube has become one of the Southwest's major suppliers of light wall pipe, casing, tubing, and mechanical tube specialties. As demand for Tex-Tube products has grown, the growth of manufacturing facilities has been dramatic:

1955 — Pipe Mill #1

1957 — Pipe Mill #2

1960 — Pipe Mill #3

Now with Tex-Tube's *third* electric resistance weld pipe mill on stream it means that you—as a Tex-Tube customer—will get:

- **a wider range of sizes and walls**
- **faster, more flexible mill schedules**
- **new items available for the first time in the Southwest (without the long, expensive freight hauls from Northern producers)**

Tex-Tube has four stocking points, plus numerous jobbers throughout the South and West. Ample and varied stocks of quality Tex-Tube steel products are carried at locations in your area.

PIPE MANUFACTURERS

High Tensile Lightwall Pipe
Oil Well Casing
Oil Well Tubing
Structural and Mechanical Tubing
Shot Hole Casing

DISTRIBUTORS

Oil Country Goods
Line Pipe
Refinery and Chemical Plant Piping

TEX-TUBE, INC.

1303 NORTH POST OAK ROAD • HOUSTON, TEXAS

Sales Offices in Midland, Dallas, Amarillo, Tulsa, Los Angeles and Pensacola

PETROLEUM WEEK

Publisher—Ervin E. DeGraff
Editor—LeRoy Menzing

Managing Editor—Richard M. Machol
General News—Robert E. Spann, editor; J. Richard Shaner, Larry Christiansen, Jr., Doris D. Grandelis
Columnist & International Editor—Wanda M. Jablonski
Regional Editor—Glenn Green, Jr. (Houston)
Exploration, Drilling & Production—Ade Ponikvar, editor; Jim Bower
Processing & Petrochemical Editor—Rene J. Bender
Pipelines, Tankers & Storage Editor—Vincent W. De Salvo
Foreign News—Georgia Macris, Frederic J. Cassin
Marketing Editor—Robert L. Siegel
Market Trend—Halsey Peckworth
District Editors
Dallas—Marvin Reid *Tulsa*—Jim Mayes *Bakersfield*—William Rintoul
Houston—Eugene Bush *Chicago*—Stewart Ramsey *Los Angeles*—Kemp Anderson
Presentation—William A. Caperell, director; Mildred Schutte
Editorial Assistants—Dorothy Miller (Chicago), Carole A. Masucci, Phyliss Lipman
Librarian—Helen T. Schaefer **Reprint Service**—Rita Feeney
Domestic News Service
Chicago Bureau—Bruce Cross, Lois Dubin
Cleveland Bureau—Arthur Zimmerman, chief; Violet Forsha
Dallas Bureau—Mary Lorraine Smith, Mae Brown
Detroit Bureau—Donald MacDonald, chief; Sally Ayling
Los Angeles Bureau—Michael Murphy, Marvin Petal
San Francisco Bureau—Jenness Keene, chief; Donald Winston, Alison Lunt
Washington Bureau—George B. Bryant, Jr., chief; Glen Bayless, Dean Reed, D. O. Loomis, Roy Calvin, Seth Payne
Correspondents: Anchorage, Austin, Baton Rouge, Billings, Bismarck, Calgary, Casper, Cheyenne, Corpus Christi, Denver, Edmonton, Evansville, Farmington, Ft. Worth, Midland, Mobile, Montreal, New Orleans, Odessa, Oklahoma City, Ottawa, Philadelphia, Pittsburgh, Regina, Salt Lake City, Seattle, Shreveport, Toronto, Vancouver
Foreign News Service
Middle East Bureau—Onnic Marashian, chief
Caracas Bureau—John Pearson, chief
Bonn Bureau—Morrie Helitzer, chief; Silke McQueen, Jim Morrison, Helga Berendt
London Bureau—John Shinn, chief; John Tunstall, George Bull
Mexico City Bureau—Peter Weaver, chief; Lourdes Marin
Moscow Bureau—Ernest Conine, chief
Paris Bureau—Robert E. Farrell, chief; Helen Avati, Arthur Erikson
Tokyo Bureau—Sol Sanders, chief; John Yamaguchi, Fumiko Komuro
Correspondents: Amsterdam, Ankara, Bogota, Bombay, Brussels, Buenos Aires, Cairo, Djakarta, Geneva, Guatemala City, Havana, Karachi, La Paz, Lima, Manila, Melbourne, Rabat, Rangoon, Rio de Janiero, Rome, San Jose, Teheran, Vienna
Manager, McGraw-Hill World News Service—John Wilhelm; Margaret Ralston, managing editor
Economics Staff—Dexter M. Keezer, director; Douglas Greenwald
Business Department: *Advertising Sales Manager*—Donald R. Thompson; *Business Manager*—John E. Thompson; *Western General Manager*—Donald O. Hanson; *Circulation Manager*—Harriet Costikyan; *Promotion Manager*—N. F. Cullinan; *Research Manager*—Leo M. Murray; *Advertising Makeup*—P. J. Callahan
Other McGraw-Hill Petroleum Publications
NATIONAL PETROLEUM NEWS PLATT'S OILGRAM NEWS AND PRICE SERVICES

PETROLEUM WEEK **SEPTEMBER 9, 1960**
Vol. 11, No. 10

Published weekly by McGraw-Hill Publishing Co., Inc. James H. McGraw (1860-1948), founder. Publication office: 871 N. Franklin St., Chicago 10, Ill. See panel below for directions regarding subscriptions or change of address.

Executive, Editorial, Circulation and Advertising offices: 330 W. 42nd St., New York 36, N. Y. **Officers of the Publications Division:** Nelson L. Bond, President; Shelton Fisher, Wallace F. Traendly, Senior Vice Presidents; John R. Callaham, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. **Officers of the Corporation:** Donald C. McGraw, president; Joseph A. Gerardi, Hugh J. Kelly, Harry L. Waddell, Executive Vice Presidents; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary.

Subscriptions are solicited only from executives, supervisors, and technically trained personnel in the oil and natural gas industries, who are engaged in exploration, drilling, producing, processing, petrochemical manufacture, transportation, or wholesale marketing. **Position and company connection must be indicated on subscription orders.** Subscription rates for all countries: $3 per year. Single copies 50¢. Second class postage paid at Chicago, Ill. Printed in the U.S.A. Title registered in U.S. Patent Office.

© Copyright 1960 by McGraw-Hill Publishing Co., Inc. All rights reserved.

Unconditional guarantee: Our primary aim is to provide subscribers with a useful and valuable publication. Any comments or suggestions for improvement will be most welcome. On written request from any subscriber, the publisher agrees to refund the unused portion of the subscription price.

Subscriptions: Address subscription correspondence and change of address to Fulfillment Manager, Petroleum Week, 330 W. 42nd Street, New York 36, N. Y. On address changes please give old and new addresses and zone numbers, if any, and enclose an address label from a recent issue if possible. Please allow one month for change to become effective.

Postmaster: Please send form 3579 to Petroleum Week, 330 W. 42nd St., New York 36, N. Y.

INSIDE Slant

KEY TO CONSERVATION

Critics of market demand laws do not realize that they are the backbone of oil conservation practices.

This opinion was expressed by Ernest O. Thompson, chairman of the Texas Railroad Commission, in a recent letter to Rep. Wright Patman's subcommittee on automation and energy resources.

"Without the market demand law, we might have very cheap oil now, but we would also have great physical waste and the price would soar in future years," Thompson wrote.

"Critics who call the market demand law a price-fixing gimmick are, in effect, also calling conservation a price-fixing gimmick—for they go hand in hand."

He stressed that such critics fail to realize the consequences that would come with the depletion of U.S. oil and gas reserves.

In Thompson's opinion, "We would be at the mercy of foreign powers and would be paying prices for oil that were set by those foreign powers...

"The stability of prices in the oil and gas industry is as striking as the stability of the industry itself, and both are essential to the welfare of this nation."

LeRoy Menzing
Editor

The Ultimate in Flexibility for Triple Completions

THE O·C·T TRI FLANGED TREE

There is *no* doubt about the payout when three good zones can be flowed through one wellhead. There *is* doubt when you use a jumble of complicated equipment.

The O-C-T Crescent Flange Tree is tailored for dual completions. And now we are proud to present the "Tri Flanged Tree" tailored for triple completions.

Like the Crescent, the "Tri Flanged Tree" offers the ultimate in *flexibility*, *simplicity* and *economy*. One valve in this triple hookup can be removed without disturbing the remaining two valves. Or, if necessary, any two valves can be removed without disturbing the third.

If there is a multiple producer on your horizon, talk to the O-C-T representative nearest you. He can solve your equipment problems before the problems arrive.

TRI FLANGED TEE

where progress is a daily practice

O·C·T

OIL CENTER TOOL CO.

SUBSIDIARY OF FOOD MACHINERY AND CHEMICAL CORPORATION

Address Export Inquiries for All Countries to
P. O. Box 3091, Houston, Texas.

60-Second Summary / WHAT'S HAPPENING IN OIL

AT-A-GLANCE PETROLEUM WEEK

September 9, 1960

dept/INDEX

Production	21
Pipelines	32
Processing	41
Marketing	44
Washington	18
Statistics	47
The Market Trend	48
Key Prices	49
Editorial	52
International	36
Personals	46
Service & Equipment	50

Foreign spending by U.S. manufacturing firms and petroleum companies is heading for a new record. A survey by McGraw-Hill indicates capital expenditures this year will hit $2.4-billion, and next year $2.5-billion. Oil's expenditures are showing signs of leveling off, however. . . . p. 11

•

A boost in drilling efficiency is promised by three tools just unveiled by Jersey Production Research Co. Most important of these is a wall-anchor drill collar that applies "weight" hydraulically. . . . p. 21

•

The State Dept. is drawing up plans for a reciprocal visit by Soviet oil experts early next month. The Russian team is expected to come here around Columbus Day for a 30-day tour of U.S. oil fields and refineries. . . . p. 13

•

That oil "find" in California's Sacramento Valley may cause oil men to revise their thinking about the state's oil prospects. The oil comes from a formation uncommon to oil production in California, and is the first in the valley. . . . p. 24

•

The trend toward greaseless cars is getting a big push from Detroit's 1961 models. The majority will have greaseless bearings or bushings next year, from Cadillacs and Lincolns to Ramblers and Falcons. . . . p. 44

•

A giant crude still is replacing five small ones—and the goal is better economy, not greater throughput. DX-Sunray is installing the 85,000 b/d unit at its West Tulsa refinery. . . . p. 41

•

In four separate transactions, ten U.S. and Canadian firms have sold or swapped $250-million worth of assets. "Sellers" include Phillips, Sunray Mid-Continent, Anderson-Prichard, Christiana Oil Corp., and United Canso Oil & Gas Ltd. . . . p. 14

•

An integrated waterway-land transport system will mean speedier deliveries of LPG to the Memphis area. Union Texas Natural Gas Corp. opened the system to bring both propane and butane from southern Louisiana. . . . p. 32

•

Gas chromatography has been speeded up to improve process control. With a new technique, analyses can be performed in less than one minute. . . . p. 42

•

Venezuela has taken a small step toward boosting interest in exploration. It gave Texaco a special tax exemption to reduce operating costs in the Gulf of Paria. . . . p. 36

Up to the Minute

SIGNIFICANT LATE NEWS

September 9, 1960

Venezuela and the Soviet Union may get together in the near future to discuss export policies and crude prices. On the eve of his departure for Baghdad, to attend a high-level meeting which the Arab oil-producing states have scheduled for this weekend, Venezuelan Oil Minister Juan Perez Alfonzo said he is interested in setting up a series of conferences with Russian officials. These, he said, could take place during this trip to the Middle East, or "anywhere else," even Moscow. Perez commented that "the Russians ought to open their eyes to the situation that the decline of crude prices mostly affects countries that need development." His initial contact with the Soviets was made at the Embassy in Mexico City last week, and it was there that informal suggestions were made about the Moscow visit.

The Arab states' meeting this weekend will have a single purpose: To discuss a joint stand among the producing states toward the recent cuts in Middle East crude postings, and the failure of the international oil companies to consult with them beforehand. Participating in the top-level policy meeting in the ancient city of Baghdad will be representatives of Iraq, Saudi Arabia, Kuwait, and Qatar. Iran will have a representative there too, but only as an observer. Perez was invited because of the countries' common interest in crude production and prices.

•

Louisiana's Conservation Commission has rescinded its June 7 order barring dual oil well completions in new pools. An order effective Sept. 1 permits dual completions "for at least four months" pending a report by an industry committee of its recommendations for allowables for future dual wells in new pools. A dual oil producer now is considered as two wells for allowables.

•

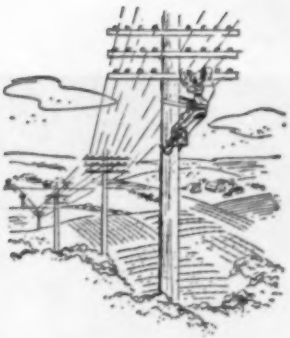
Locals of the Oil, Chemical & Atomic Workers Union have ratified an 18¢-per-hour wage-increase proposal as a mandatory bargaining goal. OCAW President Jack Knight says instructions are being sent to "all affected petroleum bargaining groups . . . to open their contracts and begin negotiations immediately." Ratifications of the goal, he says, means that no bargaining unit can sign a contract for a smaller wage increase. Some contracts are open now, and others can be opened or terminated on 60- or 90-day notices, Knight says, adding: "This means that shortly after Dec. 1 all contracts affected by the program will be open, and the union will be in a position to strike if necessary."

•

Chances looked good this week that import allocations for residual fuel oil in 1961 will be extended to more companies. The Oil Imports Administration staff is working on a new basis for a broader distribution of resid quotas, reportedly with the aim of giving some credit to historical importers, but also allowing newcomers to import resid.

A change in the residual allocations would be a break-away from the present 1957 basis used to set quotas. Insiders say a possible change in allocation method doesn't necessarily mean that the total allocation will be increased above the 1957 level, which Interior Dept. officials say is an optimum level.

there's more to Cities Service than meets the eye!



Stretching from country to country, these wires hum with activity. Today there are over 70 million phones in use in the United States serving homes and industry. They are a vital part of our everyday life.

It's easy to make a telephone call. But look at all that's behind this modern convenience.

For example, to care for over 4,000,000 New York City phones requires more than 60,000 people. And 7,000 scientists, engineers, and technicians work in this one metropolitan area seeking ways to improve the phone system.

The same holds true for the petroleum industry, too. It's easy to drive into a friendly Cities Service station, "Fill 'er up" and drive off with a tankful of quality gasolene.

But to make that possible, thousands of people are at work on five continents, utilizing the most modern facilities of exploration, production, transportation, refining, research and marketing. The investment required has exceeded a billion dollars. And millions more are being spent each year!

Only in this way can America be given what it needs for progress—more jobs and better petroleum products.

'62 COULD BE
THE YEAR
FOR YOU!

how to make octanes come clean . . .

Most refiners these days are called upon to make relatively high-octane motor fuel to meet current market demands. But high octanes alone are not enough. Motorists also want gasoline that burns clean!

By means of new and improved processing techniques it is now possible to produce high-octane blending components that give you the kind of gasoline motorists want. In addition to high-octane rating, these components possess excellent combustion and performance characteristics especially tailored for modern high compression ratio engines.

In order to help refiners realize their maximum potential, UOP makes available the wide variety of processes described on the opposite page. UOP technical, economic and market specialists are also available to help you determine which will best meet your existing and future needs. Ask us for a preliminary proposal, at no obligation.

INFORMED OPINION indicates that 1962 will require a substantial increase in process capacity . . . NOW is the time to start your planning!

UOP UNIVERSAL OIL PRODUCTS COMPANY
30 Algonquin Road, Des Plaines, Illinois, U.S.A.

WHERE RESEARCH TODAY MEANS PROGRESS TOMORROW

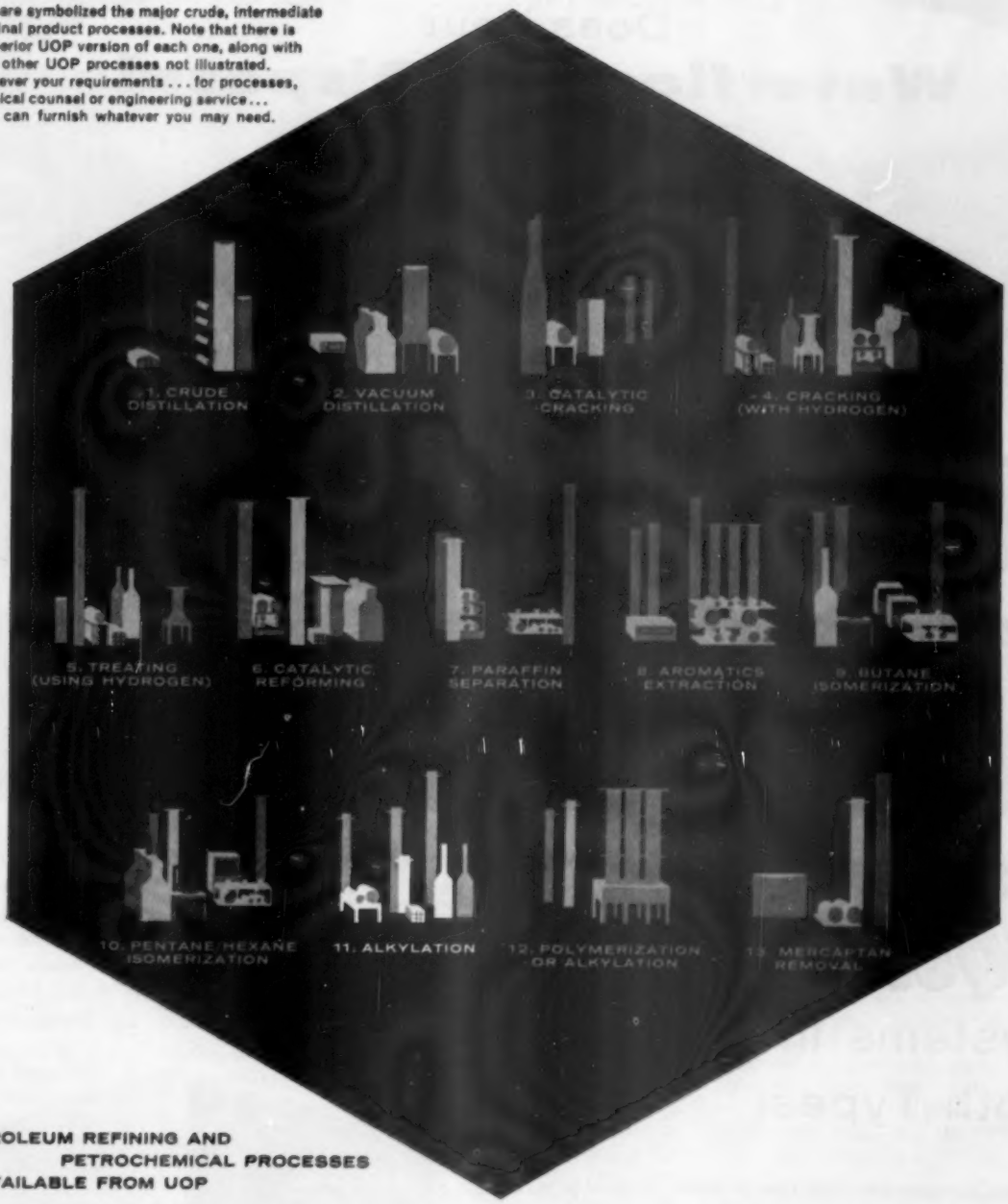
"HF" ALKYLATION

Here is a catalytic process that enables the refiner to produce an isoparaffin fuel component that burns with a minimum of carbon deposit . . . greatly reduces surface ignition and consequent rumble . . . is ideally suited to today's high compression auto engine.

Developed and licensed by UOP, "HF" Alkylation combines olefins such as propylenes, butylenes and amylenes with isoparaffin, usually isobutane. The component thus formed, alkylate, is a mixture of branch chain hydrocarbons of higher molecular weight. It is widely used in producing high octane aviation gasoline, as well as an anti-rumble component in motor fuel.

An ideal companion process to "HF" Alkylation is the UOP Butamer™ process for producing isobutane.

Here are symbolized the major crude, intermediate and final product processes. Note that there is a superior UOP version of each one, along with eight other UOP processes not illustrated. Whatever your requirements . . . for processes, technical counsel or engineering service . . . UOP can furnish whatever you may need.



PETROLEUM REFINING AND PETROCHEMICAL PROCESSES AVAILABLE FROM UOP

1. CRUDE DISTILLATION equipment is designed and engineered by UOP in any desired capacity.

2. VACUUM DISTILLATION and **VISBREAKING**—easy-to-operate processes for preparation of feed stocks for catalytic cracking.

3. FLUID CATALYTIC CRACKING—an improved process that gives higher yields, higher octane numbers.

4. LOMAX™—highly flexible process that converts middle distillates and vacuum gas oils into gasolines and distillate fuels of outstanding quality.

5. UNIFINING™—a modern process that completely purifies petroleum distillates.

6. PLATFORMING® produces high octane gasolines, high purity aromatics.

7. MOLEX™—a new continuous separating process that removes lowest-grade hydrocarbons from gasoline.

8. UDEX®—the ideal process for separation of super-purity aromatics.

9. BUTAMER™—a new and practical process for producing isobutane.

10. PENEX®—a new process that converts light, normal paraffins to isoparaffins.

11. HF ALKYLATION—makes alkylate, top anti-rumble motor fuel. Sulfuric acid process also available.

12. CATALYTIC CONDENSATION—converts olefin fractions of refinery gases into high-quality gasoline and petrochemicals.

13. MEROX™—a new and inexpensive treating process to remove mercaptans from gasolines and light distillates.

PROCESSES NOT ILLUSTRATED:

REXFORMING®—the ideal process to insure your top octane position.

CATALYTIC DEHYDROGENATION—removes hydrogen from hydrocarbons to produce less-saturated hydrocarbons.

HYDEAL™—a new process for the hydrodealkylation of toluene or C_9 aromatics to produce benzene; may also be used for manufacturing phenol and naphthalene.

HYDRAR™—converts benzene to cyclohexane with excellent yields, achieves extreme high purity with Udex grade benzene.

OLEFIN EXTRACTION—efficiently separates olefins and diolefins from paraffins; prepares olefins for further conversion.

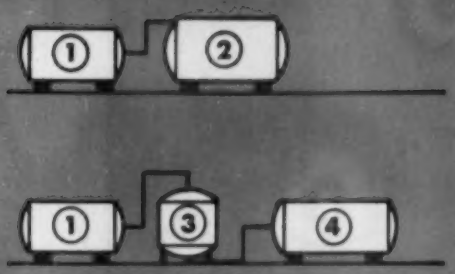
AROSORB™—removes heavier aromatics from synthetic and natural distillates, produces aromatic-free heavier distillates.

ALKAR™—produces ethylbenzene, cumene and other alkylated aromatics from Fluid Cat Cracker off-gas streams.

UNISOL®—an economical process for treating high mercaptan-containing gasolines.

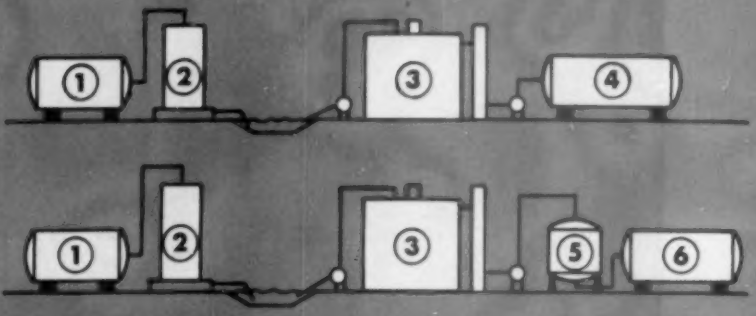
Does Your **Waterflood or Disposal** Problem Require...

A **CLOSED SYSTEM**



1. Oil Skimmers
2. Filta-Wash
3. Filters
4. Backwash Tanks

OR AN **OPEN SYSTEM?**



1. Oil Skimmers
2. Aerators
3. Raw Water Treating Tanks
4. Filta-Wash
5. Filters
6. Backwash Tanks

BS&B *AQUA-Kleener** Systems Include Both Types!

Your BS&B Representative can help you take the "guess-work" out of your waterflood or disposal problem. Whether you need a simple *closed type* system which excludes air from the process, or a more elaborate *open type* system which uses air as a part of the treatment, he can recommend the correct system from BS&B's full line of AQUA-KLEENER water treating equipment to solve your problem most efficiently and economically.

For the best possible field care of either permeable plate or graded bed type filters, the BS&B PHANTO-MATIC* Filter Backwash Controller is available to operate on either a time-cycle or a preset filter bed differential pressure. A complete installation including the PHANTO-MATIC Filter Backwash Controller and pumps is offered as a skid-mounted unit, ready for installation in the flow line.

* AQUA-KLEENER and PHANTO-MATIC are trade names of Black, Sivalls & Bryson, Inc.

Talk Over Your Water Treating Problems With Your BS&B Man, Or Write To...

BLACK, SIVALLS & BRYSON, INC.

DEPT. I-EU9

P. O. BOX 1714, OKLAHOMA CITY

The Gap Is Closing, but Oil Outlays Still Pace U.S. Expenditures Abroad

(millions of dollars)

	1957 Actual	1959 Actual	% Change 1959-1957	1960 Planned	% Change 1960-1959	1961 Planned	% Change 1961-1960
All U.S. Industry Foreign Spending	$2,504.5	$2,077.9	— 17.0%	$2,395.2	+15.3%	$2,547.6	+ 6.4%
Oil Industry Capital Spending	1,575.1	1,143.0	— 27.4	1,268.7	+11.0	1,243.3	— 2.0
Oil's Share of Total U.S. Spending Abroad	62.8%	55.0%		53.0%		48.8%	

Oil's Investments Are in These Countries

Canada	367.0	274.3	— 25.3	266.5	— 2.8	174.1	—34.7
Latin America	908.8	388.6	— 57.2	367.9	— 5.3	385.4	+ 4.8
Common Market	239.4	137.2	+14.6	152.2	+10.9	174.1	+14.4
Rest of Europe		137.2		152.2	+10.9	149.2	— 2.0
Other (*)	59.9	205.7	+243.4	329.9	+60.4	360.5	+ 9.3

(*) These totals include $125.7-million which petroleum companies spent in the Middle East in 1959; and the planned spending of $152.2-million in 1960, and $161.6-million in 1961.

The U.S. oil industry's capital expansion and development plans in Canada, Latin-America, Europe, North Africa, and the Middle East still represent the lion's share of the billions of dollars that are being invested abroad by American manufacturing firms and petroleum companies. But oil's capital expenditures are leveling off, presumably as a direct result of the economic belt-tightening that is mirroring surpluses, jittery prices, and skinnier profit margins.

This is the gist of McGraw-Hill's second annual Survey of Foreign Capital Expenditures by U.S. Firms, representing months of study and evaluation by its Dept. of Economics.

The figures are not all-inclusive, since they represent only the capital spending plans of the firms that cooperated in the survey.

It was estimated, however, that the cooperating companies acount for approximately 75% of the annual capital expenditures of U.S. manufacturing and petroleum companies abroad.

Total expenditures are increasing, with the probability that another all-time peak will be hit next year.

The 1960 spending programs are expected to aggregate nearly $2.4-billion, an increase of 15% over the investments made last year.

And the forecast indicates that in 1961 there will be another, albeit more modest, increase of 6.4%, to hike the 1961 total to $2.5-billion. This will be roughly $40-million more than was spent in 1957, which is believed to be the peak year.

Foreign expenditures slumped sharply in 1958, immediately after 1957's big push. The decrease amounted to $500-million. In 1959, interest in foreign development picked up steam again, and this year's forecast indicates that spending plans are moving ahead with seven-league strides.

Oil's capital investments abroad are expected to be up 11% this year. But contrary to the over-all trend, a fall-off of around 2% is indicated for 1961.

Capital expansion plans for this year aggregate $1,268,000,000, and for next, $1,243,000,000. It is not inconceivable, however, that, if domestic prices, profits, and other problems acquire a more optimistic tinge, oil's participation will reflect the more encouraging outlook.

U.S. manufacturing companies will probably set a new record this year and next with planned expenditures of more than $1-billion. And, if they carry out all of their present plans, their foreign investments in 1961 will, for the first time, exceed those of the U.S. petroleum companies.

An interesting facet of the spending plans of the manufacturing companies is the shift to Common Market countries. Only 17% of their 1959 investments were in these countries. The 1960 plans envisage 24%, and the 1961 forecast is 27%.

Petroleum companies are shifting their foreign investments too, with the Middle East and North Africa getting the nod over Canada and Latin America.

The Canadian and Latin American expenditures, which accounted for 58% of the oil companies' foreign total in 1959, will be reduced to 50% this year, and 45% next year.

The Middle East and North African statistics present a vastly different picture.

In 1957, the year of the Suez crisis, Middle East expenditures were curtailed, and Latin America's, correspondingly, reached abnormal heights.

By 1959, the survey's catch all sta-

tistical category, which includes the Middle East and North Africa, skyrocketed 243% to $205.7-million. The survey shows that there will be another 60% increase this year to $329.9-million, and a 9.3% increase in 1961 to raise the aggregate to $360.5-million.

Although specific breakdowns are not available, Middle East expenditures by U.S. petroleum companies were estimated at $125.7-million in 1959, and the planned spending for 1960 and 1961 involves $152.2-million and $161.6-million, respectively.

Machinery, transportation equipment, and chemicals, are the pacesetters for the manufacturing companies' capital development abroad.

Machinery companies, including electrical machinery manufacturers, are boosting their 1960 expenditures 41% over 1959, to a peak of $351.1-million. And if next year's plans are followed, they will top $410.8-million.

Transportation equipment, including automobiles, is jumping to $285.5-million this year, an increase of 20%, and to $310.2-million in 1961.

Chemical company plans involve $246.4-million worth of overseas expenditures this year, up 29% over 1959, and $295.8-million next year.

Of the various manufacturing industries that are engaged in foreign operations, only primary metals, and fabricated metals and instruments, are retrenching this year.

The bulk of the planned investments abroad is being spent for new facilities. The indications are that this will amount to 88% of the total, with only 12% being devoted to purchase of land and expansion of existing facilities.

And almost half of the companies that cooperated in the survey indicate that new markets were the most important factors in their managements' decisions to expand.

Petroleum companies reported, however, that the availability of raw materials, and the possibility of higher profits were the chief reasons for their multimillion-dollar expenditures throughout the world.

Total export sales of U.S. industrial firms this year are expected to reach $13.2-billion, an 11% increase over 1959.

The largest increase in exports is expected by the automobile and transportation equipment industry—24%.

Increases of 15% or more are anticipated by the primary metals, nonelectrical machinery, chemical, and rubber industries. Only the metalworking industries—fabricated metals and instruments—expect a decline in exports this year.

Exploration and Development Spending To be Heavy in Canada and Latin America

Year	Charged Against	Canada	Latin America	Common Market	Rest of Europe	Middle East	Other(*)	Totals	
		(Millions of Dollars)							
1959	Income	$93.0	$108.9	$8.0	$2.7	$15.9	$37.2	$265.7	$602.0
	Capital Acct.	117.7	164.8	3.4	0	33.6	16.8	336.3	
1960	Income	91.0	96.7	5.7	2.8	22.7	65.4	284.3	634.1
	Capital Acct.	118.9	139.9	3.5	0	31.5	56.0	349.8	
1961	Income	101.5	87.0	5.8	8.7	20.3	66.7	290.0	709.8
	Capital Acct.	146.9	109.2	0	0	12.6	151.1	419.8	

(*) Principally North Africa

R. M. Cooper

R. E. Howe

W. V. Ischie

L. J. Hoar

Seven Executives Are Promoted to Key Posts by Sinclair Refining and Texaco

Sinclair Refining Co. and Texaco Inc. have revamped their executive line-ups with a series of appointments involving vice-presidents and operating heads.

The Sinclair promotions were announced by C. J. Allen, who only recently succeeded Thomas Kimball as chief executive officer of the company.

L. J. Hoar was named executive vice-president and director of marketing; Robert E. Howe executive vice-president and coordinator of petrochemicals and research; and W. Vaughn Ischie executive vice-president and director of manufacturing.

All three formerly were line vice-president of their departments.

R. M. Cooper was elected a vice-president and director and general manager of refineries.

At Texaco, Marion J. Epley, Jr., formerly vice-president and assistant to the chairman, was made senior vice-president in charge of world-wide sales. Kerryn King, formerly vice-president in charge of employee and public relations, was moved up to Epley's old job, and Ben Halsell, formerly director of advertising and sales promotion, is King's successor.

M. J. Epley, Jr.

Kerryn King

Ben Halsell

Soviets Are Ready to Return the Visit

U.S. oil men are impressed with Russia's potential, but feel that U.S.S.R. technology is lagging.

The Soviets expect to land their "reciprocal" group of oil technicians in the U.S. around Columbus Day. And they'll inspect U.S. oil fields and installations straight through the heat of the U.S. election campaign.

That's what the first U.S. oil men returning from a month-long inspection of Russia's oil industry said in New York.

W. W. Keeler, executive vice-president of Phillips Petroleum Co., and head of the delegation; Ira H. Cram, senior vice-president of Continental Oil Co.; and George T. Piercy, manager of the economics department of Standard Oil Co. (N.J.), said it will be a group of ten people.

"They'll be people like the chief engineer of a refinery, or a head technician from a research laboratory," Keeler said. "The Russians want technical knowledge.

"We'll show them what they showed us. The Russians believe in an eye for an eye and a tooth for a tooth. They took us to two places not on the approved schedule—an offshore field and an economic council meeting. So I guess we'll show them an offshore installation, and maybe some sort of legislative event."

While they could get no figures on Russia's export plans, the U.S. oil men who toured the U.S.S.R. concluded that the Soviet Union could be a "substantial economic problem."

They have a tremendous production capacity, said one member of the team. The question is whether the state will make the investments necessary to step up exports—or whether the oil will be absorbed by demand at home. Officials of Gosplan, the state planning committee, tried to leave the impression with the western oil men that they have no reason to worry about the Soviet Union becoming a major competitor.

"They have a terrific latent demand in Russia," said one member of the group. "And there are many areas in which demand can be increased. The Russians indicated to us that they could push production up 25% over 1965 output goals [of 4.8-million b/d] and still use the oil."

"Right now," he added, "demand is being supplied by lower-grade, more expensive fuels."

The U.S. experts felt sure, on the basis of their month-long inspection, that the Russians can meet, and probably surpass, their Seven Year Plan goals—even though they "are technologically behind us."

"Let's assume that technologically, they're ten years behind us in exploration," said Cram. "That is immaterial. They can still find a lot of oil with their methods. They don't have to push."

"The fact that they are technologically behind us is not too important," Keeler added. "They're used to getting along with less efficiency and lower quality.

"We didn't see anything that would prevent them from reaching their Seven Year Plan. In fact, what we did see makes us think they may even exceed it."

In addition, the oil men added, "We didn't learn anything we didn't already know about them technologically.

"In their use of manpower, the Russians do not approach U.S. efficiency. This may be partially political—although they told us there is a big push toward automation."

"All we know about the oil fields actually is what we've been told," Cram said. "We visited only four oil fields and four refineries."

Oil Men Cheered

The touring U. S. oil men were amazed at the friendly reception they got from the Russian people.

They thought there would be antagonism as a result of the U-2 "spy trial" in Moscow. But the reverse was true.

"They took us to some regions," says W. W. Keeler, of Phillips Petroleum Co., "where the people went wild. They'd never seen an American. One old lady in Novokuibyshev shook our hands and said 'Now I can die, I've seen an American.'"

The Americans think there might be one thing to learn from the Soviets.

Says Keeler, "They give their people an awful lot of recognition; I'm not sure that we give ours enough."

One thing Cram noted: "They have twice as many petroleum engineers out in the field as we do."

U. S. team members agreed that Soviet oil men are capable, but that they are too departmentalized and limited in their scope.

"Of the technical people we met," Keeler said, "most knew everything about their own jobs, but little or nothing about what's going on next door. While the U.S. oil man is integrated, the Russians are departmentalized. Every segment there is a separate business."

Piercy interjected, however, that the Soviet's new drills are an indication of "what good technological people they really are."

The Americans didn't get any reliable production cost figures. But, Keeler noted, they are probably not high, because so much Soviet oil is at relatively shallow depths; there is no need to go as deep as in the U.S.

The oil men did get some refinery figures at one plant. But they questioned them and were hesitant to say anything about them publicly.

Cram remembered one Russian who said: "We won't talk about costs; that's a trade secret."

Piercy also noted that the Russian pricing system is "rigged" to promote or stymie consumption as officals decide.

The oil men were impressed with the Russian turbodrill, but expressed some reservations about it, too. One Russian told them it had been used to drill a test to a depth of 4,500 meters (14,760 ft.).

In Moscow, one team member said: "They seem to make good footage while they're drilling with the turbodrill. But they apparently spend a lot of time out of hole."

The Soviets are known to have been having trouble with excessive drillbit wear, resulting from overloads and other factors. But recent claims maintain that the problem is being solved.

The group also witnessed a demonstration of an electrodrill, which the Russians say will be put to use for depths below 2,000 meters (6,560 ft.).

They thought the electrodrill's performance was impressive. But some doubted that it would be adaptable to the U.S. because of high bottomhole temperatures, to which they believe the electrodrill is sensitive.

One U.S. traveler also said that

the Russians will have heat problems, too, unless they have and use materials capable of withstanding extremely high temperatures.

At any rate, the delegation saw no indication that the electrodrill was in wide use. There have even been complaints in the Soviet press about delay in its manufacture.

The delegation did get to see the Baku oil field, and said it looks like Long Beach, Calif.

"It looks like there are millions of derricks," Keeler said. And, he added, the team noticed a great many derricks left standing in the Russian fields. "They just leave them up it seems."

Piercy mentioned a Russian statement that there are only 50 days a year that the Caspian Sea is calm enough for boats. That's the reason the Russians have set up a huge network of offshore runways—some heading 60 mi. out to sea.

"Those walkways," he said, "look more like highways—like Key West."

The oil men were not impressed by anything they saw in Soviet refineries.

Keeler said the group saw no catalytic reforming units. But they did see hydroformers and fluid cat crackers, apparently adopted from U.S. models. They saw almost no automation or advanced instrumentation in refineries.

One oil man pointed out that Soviet refining objectives and problems are different from those of the U.S. They have a shortage of heavy and diesel-type fuels. Hence, Keeler said, they are more interested in producing this than light fractions.

The refineries are geared accordingly, and gasoline is produced as a byproduct—apparently surplus to Soviet needs.

The Americans saw nothing that looked like a modern service station in operation.

"We saw six outlets in 6,000 mi.," Keeler said. "And they were old, beat-up, rusty pumps that had to be wired to the car—it took that long to fill it up.

"But we did see what might be a modern station going up at an intersection near Baku."

An interesting sidelight: "Whenever the Americans went aboard planes, they were seated over the wings to cut down their opportunities to see the countryside.

"It's funny," Keeler said. "We could take as many pictures as we wanted in some areas—like Leningrad. In other places, though, we couldn't take a thing."

Five Firms Sell Properties

Asset sales and exchanges of stock involving ten U.S. and Canadian firms, and a quarter of a billion dollars worth of properties, had the petroleum industry buzzing this week.

All of the sales and exchanges came to a head in the final days of August, and over the Labor Day weekend, traditionally a dull period for any kind of business activity.

Although ten companies participated in the deals, only four transactions were involved.

The companies that sold or exchanged assets—subject, in most instances, to stockholder approval—were Phillips, Sunray Mid-Continent, Anderson-Prichard, Christiana Oil Corp., and United Canso Oil & Gas Ltd.

Here are the highlights:

• Phillips and Sunray released their Canadian assets to Pacific Petroleums, Ltd., of Calgary, B.C., in a straight stock-exchange deal, under which Phillips acquires a 39% interest, and Sunray a 5.8% interest, in Pacific. Assets involved are worth $100-million to $115-million.

• Anderson-Prichard sold its producing properties to Union Texas Natural Gas Corp., and the Frankfort division of Joseph E. Seagram & Sons, and its refining and marketing and transportation facilities to a new firm, Apco Oil Corp. Assets involved: $149-million.

• Christiana Oil Corp., Los Angeles, sold various properties in nine Texas counties to Producing Properties, Inc., Dallas. Sales proceeds, including those to be realized on the reserved payments: $6-million.

• United Canso sold its 49% interest in the Saskatchewan Hatton Field gas reserves to Saskatchewan Power Corp., for approximately $2.9-million.

Although the Phillips-Sunray deal appeared, on the surface, to be a pullout from Canada, the opposite is true.

Said a Phillips spokesman: "Phillips plans to be very attentive to its Canadian interests. We intend to participate actively in the management of Pacific Petroleums."

Sunray, with less at stake, had less to say. But a company spokesman acknowledged that its management would keep a close eye on Canadian developments.

Under terms of the deal, Pacific Petroleums traded roughly 6.6-million shares for the Phillips and Sunray Canadian assets.

Pacific's total stock issue now after the deal is approved will stand 14,775,773 shares. On the basis of current market prices, Phillips' interest in Pacific is in excess of $70-million, and Sunray's more than $10-million.

The exchange hinged almost exclusively on undeveloped reserves. Com-

Significant Sidelights

■ **Heavy fuel oil prices along the East Coast went up 15¢ a bbl. this summer in a contraseasonal advance.**

The Bureau of Labor Statistics, in its report covering price trends in June and July, made this pertinent comment: "The main reason [for the price increase] was the possibility of an East Coast shortage owing to low import quotas for the third quarter."

Perhaps the bureau's statisticians and economists should have talked to their governmental counterparts in the Oil Imports Administration. OIA sets the quotas, not the oil industry; and the third-quarter quotas were far less than residual importers had recommended. The same holds true for the fourth-quarter quotas, which were set a couple of weeks ago.

If prices continue to go up—as they undoubtedly will—there should be no question where the responsibility lies.

pany sources conceded that "production, being very nominal, barely figured in the exchange formula."

These sources added that neither Phillips' 50% ownership with Pacific in gas processing and refining facilities at Dawson creek and Fort St. John, nor its handful of retail and bulk outlets along the Alcan highway and in the Peace River area, were important facets of the deal—although all were tied up in the same package.

Phillips will continue to be represented in Canada at the retail level, however. Said a Pacific spokesman: "Phillips already has established a brand image in Canada, whereas Pacific has none. We regard it as good business to retain the Phillips' brand in Canada."

The deal was made to consolidate properties and reduce operating costs. But a political factor is apparent, too.

Sources outside the companies noted that various Canadian groups are expressing increasing resentment at heavy U.S. investments in Canada.

This may have led Phillips and Sunray to conclude that a Canadian company might receive preferential treatment, and a better domestic reception.

The Anderson-Prichard sale of its producing properties is further support of the contention that it is cheaper to buy crude reserves than to find and produce them.

The $123-million deal is subject to stockholder approval, but no problems are anticipated.

Union Texas Natural Gas Corp. will acquire an undivided five-sixths interest in the oil and gas properties, and the Frankfort division of Joseph E. Seagram & Sons, Inc., will acquire an undivided one-sixth. Union Texas will be operator.

Apco Oil Corp., a newly formed company, will purchase Anderson-Prichard's refining, marketing, and transportation facilities for $26.2-million.

The transaction involves about 1,700 producing wells in 259 oil and gas fields in the U.S. and Canada.

Average crude production from these wells in the first six months this year was 14,296 b/d. Anderson-Prichard holds oil and gas leases on approximately 950,000 acres, of which 77,000 are classified as productive.

The company has two refineries—one in Arkansas City, Kan., with a capacity of 25,000 b/d, and the other in Cyril, Okla., with a capacity of 12,500 b/d.

The sale will enable Union Texas Natural Gas Corp. to more than double its U.S. and Canadian crude production.

Union Texas produced roughly 9,800 b/d of crude and gas liquids in the U.S. last year, mostly in Louisiana and Texas, and another 1,000 b/d in Canada. Its five-sixths share of the Anderson-Prichard properties will add some 11,440 b/d of crude production, though the bulk of this will not be reported as Union Texas production because of the payments due to Brookston Oil Co., which helped to finance the deal.

Conservation Means Lower Prices

Conservation controls mean greater oil production at lower prices rather than curtailments to support higher prices, according to Richard J. Gonzalez, a director of Humble Oil & Refining Co.

Regulation of production, whether based on technical considerations alone or on market demand as well, obviously affects supply and price, he told the meeting of the Louisiana-Arkansas division of the Mid-Continent Oil & Gas Assn. in New Orleans this week.

But the hasty conclusion that elimination of controls would mean greater supply and lower prices overlooks the difference between short-term and long-term consequences, he said.

Without the present system of production controls, investments and operating costs per barrel would be much higher, Gonzalez contended.

Some of the measurable advantages, he explained, are:

- The reserves developed per oil well drilled since 1925 have been more than five times as much as the average up to that time.
- The proportion of reserves recovered by primary methods from fields developed now is probably "at least twice" as much as that realized from comparable fields in the old days of wide-open production.
- The price of crude in dollars of constant purchasing power has remained relatively stable over the long run, in spite of deeper drilling and smaller reserves per acre.
- The system of regulation has made it possible for thousands of small operators to engage in exploration and production, and competition among producers and producing states has served the public well by keeping prices and profits reasonable.

The crucial question about conservation regulations relate to proration based on market demand, which "dampens but does not prevent short-term fluctuations in price," Gonzalez said.

In passing judgment on market-demand proration, he said, it must be considered that only so much oil will be consumed in the short run, regardless of the price, because of relatively inelastic demand.

Also, he explained, production in excess of demand only results in waste, and can lead to widely uneven rates of withdrawal in a particular field if buyers are forced to prorate their purchases.

Also, he added, proration to market demand provides a margin of spare productive capacity that has proved of great value in emergencies.

He estimated that, while some fields are restricted to less than 30% of capacity, the average operating rate for the domestic producing industry in 1960 will average about 70% of capacity. He also estimated that the current margin between production of all petroleum liquids and maximum efficient capacity is probably between 3-million b/d and 3.5-million b/d.

The current need in conservation regulations, according to Gonzalez, is for encouragement of new discoveries to supply production for the future.

"Under present circumstances, serious thought must be devoted to modifications in conservation regulations which will best serve the public interest by promoting less intensive development of known reserves and by encouraging the proper level of exploration for more new reserves," he said.

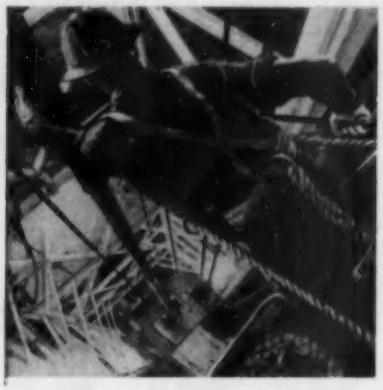
Pennsy Strike Poses No Problem for Oil

The Pennsylvania Railroad strike will occasion no major problems for eastern oil companies—if it doesn't last too long.

A spot check with traffic departments of key companies indicates that customer inventories, in many instances, have been built up in advance. Alternate routes, via other railroad lines and trucks, will be adequate to take care of any pressing deliveries.

A long strike could change the picture, however. But most traffic men doubt this will take place.

THE BEST SAFEGUARD IS KNOWLEDGE



In the oil and gas industry, knowledge is acquired only through long years of experience. Republic, as a pioneer oil bank in the South . . . with the South's largest Oil and Gas Department, has this knowledge. For decades, Republic has been pacing the industry, keeping thoroughly informed on new trends and developments, credit ratings, equipment distributors and all the varied factors involved in oil and gas financing.

Republic offers you not only unlimited resources but also the strength which comes from specialized knowledge. Next time you need bank service on an oil or gas matter, talk to Republic, indisputably a leader in the field. We understand your problems . . . speak your language and have the resources to best protect your interests.

REPUBLIC NATIONAL BANK OF DALLAS

CAPITAL AND SURPLUS
$102,000,000
LARGEST IN THE SOUTH

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

What's New / IN THE INDUSTRY

Tennessee Gas Transmission Co. may seek the first court test of the Federal Power Commission's split-hearing procedure. Under this procedure, FPC gave TGT an increase from 6% to 6⅛% on its rate of return, compared to the 7% sought by the company. Last week, TGT asked FPC to reconsider in a rehearing. If the commission refuses to grant the rehearing, it is likely that TGT will open a full court fight against the decision under the split-hearing procedure.

•

Fidel Castro is going all-out to remove all physical signs of foreign ownership of the refineries he seized. Tank trucks and filling stations of the former Esso Standard, Shell, and Texaco refineries in Cuba have lost their distinctive colors and well-advertised names and slogans. All this has been replaced by the green and white sign of ICP—the government's Institute of Cuban Petroleum.

•

Federal gasoline tax collections have topped the $2-billion-a-year mark for the first time in history. The Internal Revenue Service says collections in the fiscal 1960, which ended June 30, amounted to $2,015,000,000, compared with $1.7-billion for fiscal 1959. Collections in the last quarter of fiscal 1960 hit an unprecedented figure of $518-million, compared with $387-million for the same period of 1959.

•

A gas bill task force of spokesmen from all segments of the natural gas industry is tentatively set to meet in New York Oct. 7. The group, composed of representatives of producers, pipelines, and distributors, will reportedly discuss the progress to date in drafting a measure to amend the Natural Gas Act and ease federal controls on producers.

•

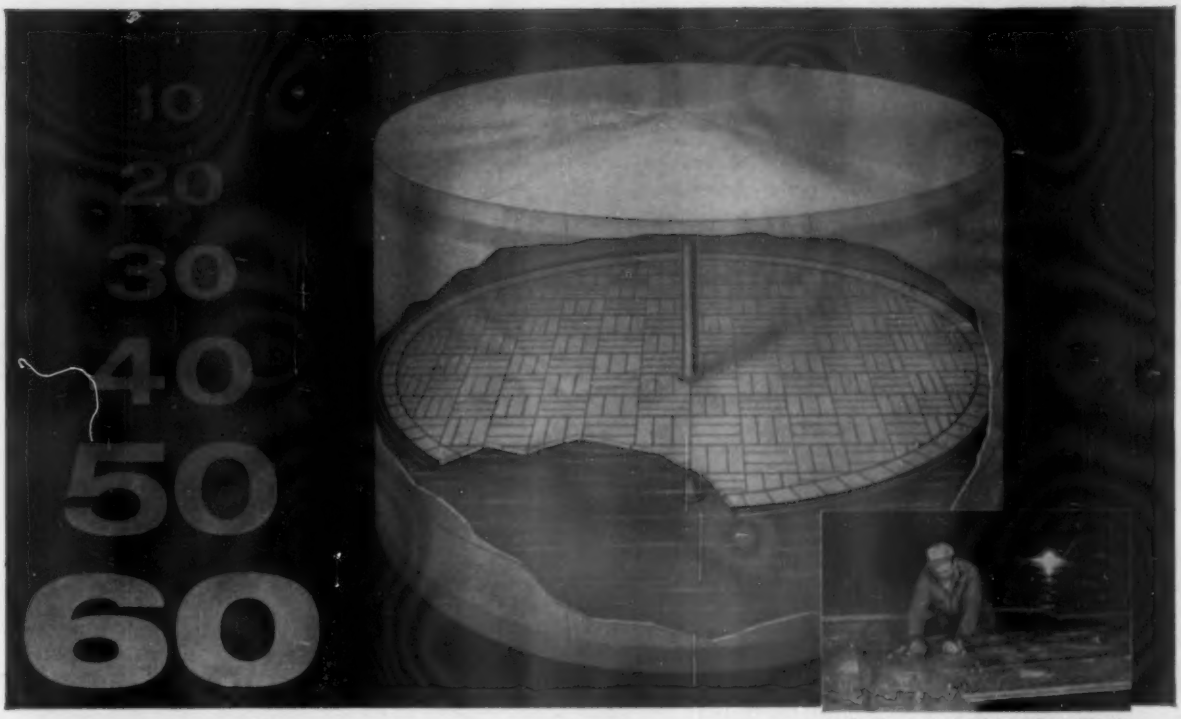
Gasoline taxes may be boosted in North Carolina to pay the tab of a new "master plan" for road building. The 15-year plan blueprints what are considered to be the essential road needs for the period and estimates the cost at $2,417,500,000. Existing gasoline taxes are expected to underwrite $1,912,500,000 of the bill, leaving a deficit of $33.6-million a year. The plan itself does not advocate raising gasoline taxes. It urges that $14-million a year of highway funds now being spent to support state agencies be returned to road-building purposes. Sources in Raleigh speculate that a 1¢-a-gal. boost in gasoline taxes might be necessary to make up the balance, if the road plan is approved.

•

Esso is actively interested in Argentina's recent offer of oil rights—particularly on the southern flank of the Comodoro Rivadavia Basin. Leo D. Welch, chairman of Standard Oil Co. (N.J.), made this announcement in Buenos Aires. He added that his company, which is already carrying out a $70-million development program in Argentina, is interested in raising its investment to $100-million, possibly including a lube plant. Welch said that, following a series of interviews with President Arturo Frondizi and Economy Minister Alvaro Alsogaray, he was "far more optimistic" about Jersey's Argentine operations.

•

Alaska received more than $1.3-million as its share of revenue from oil and gas leases in the first half of 1960. In addition, it will get $52,883 from coal leases. Including the current payments, Alaska will have received $11,114,745 from oil and gas leases and $265,809 from coal leases.



70 ft. HAMONDFLOTE COVER

converts old riveted vessel to modern floating roof tank

A rigid foam plastic Hamondflote Cover was quickly and easily installed in this 70 ft. diameter riveted tank. Using conventional hand tools in a simple assembly operation, maintenance personnel converted the vessel to an efficient conservation tank.

SIZE IS NO LIMITATION . . . the Hamondflote Cover can be used to modernize tanks up to any diameter in use today, regardless of the number or location of supporting columns. It reduces evaporation losses by as much as 95%, is completely resistant to a wide range of chemicals and petroleum hydrocarbons and will withstand temperatures from −94°F. to +300°F.

Write for bulletin which tells the entire Hamondflote Cover story.

1. Sections of the Hamondflote Plastic Cover are easily put together with tongue and groove joints and simple hand-tightened clamps.

2. Here the 70 ft. Cover is almost completed. Note that it is strong and rigid enough to support the workman's weight.

3. Rivets, columns and other protrusions on the inside wall of the tank present no problems. The flexible packing gland easily slides over them when the roof is rising or falling with the liquid level.

HAMONDTANK® — 12 plants to serve you coast to coast — PDM ENGINEERS · FABRICATORS · CONTRACTORS

Pittsburgh-Des Moines Steel Company

Plants at PITTSBURGH, WARREN, BRISTOL, PA. • BALTIMORE • BIRMINGHAM • DES MOINES
PROVO, UTAH • CASPER, WYO. • SANTA CLARA, FRESNO, STOCKTON, CALIF.

Sales Offices

Atlanta 5 • Baltimore 26 • Boston 10 • Bridgeport 5 • Chicago 3 • Dallas 1 • Denver 2 • Des Moines 8 • El Monte • Fresno • Jacksonville • Los Angeles 57 • Newark 2 • New York 17 • Pittsburgh 25 • Sacramento • Santa Clara • Seattle 1 • Stockton
licensees and sales offices in many foreign countries including Argentina, Australia, Belgium, Brazil, Canada, Chile, Colombia, England, France, Haiti, India, Italy, Japan, Mexico, Netherlands, Peru, Puerto Rico, Sweden and W. Germany.

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
September 9, 1960

The federal government soon will start work on a giant helium extraction program. Congress, in the final days of its postconvention session, passed legislation authorizing the Interior Dept. to administer a $255-million, 20-year helium conservation program. Construction of up to 12 helium extraction plants along natural gas pipelines is planned. The plants are to be built and operated by private industry if possible; if not, government funds could be used.

At least three oil companies and three natural gas pipeline companies are believed to be interested in building helium plants. Companies that have expressed some interest to Washington officials are Phillips Petroleum, Cities Service, Socony Mobil, United Gas Pipeline, Transcontinental Gas Pipeline and Colorado Interstate.

•

A major distilling company may go into the helium business, too. National Distillers is one of the few nonpetroleum companies that is interested in the helium program.

•

No contracts for construction and operation of the helium plants can come into force before Mar. 1, 1960, however. The Senate wrote this provision into the helium legislation to insure that the next Administration—with a new President and possibly a new Interior Secretary—will have a chance to study the program before contracts are approved.

•

The Senate tightened the legislation to make sure that the Federal Power Commission keeps authority over natural gas containing helium. The helium bill passed by the House contained no language on FPC jurisdiction over sales of natural gas from which helium has been extracted. FPC officials had testified, however, that the House bill might be interpreted as freeing such gas from FPC control. So the Senate amended the bill to make sure that FPC would continue to exercise federal regulation.

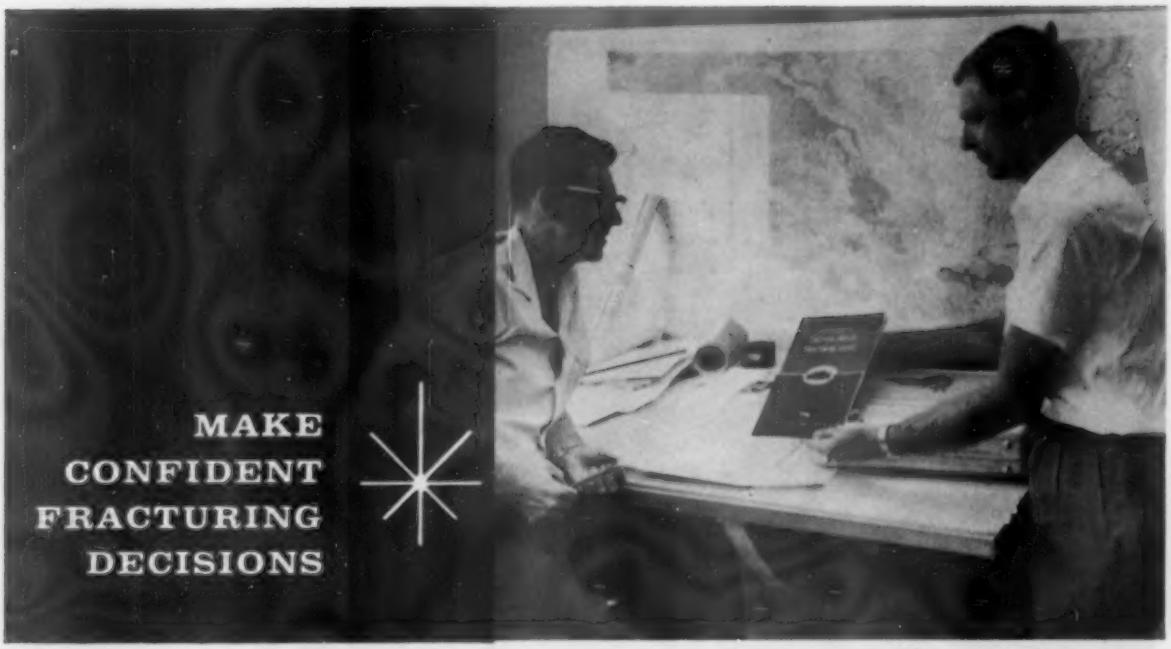
FPC also will be able to allocate costs between gas production and a gas producer's helium operations. The Senate also successfully tacked on this amendment—giving FPC specific authority to consider the helium aspects of the business when setting a producer's natural gas prices. FPC will be allowed to allocate costs, an action which Sen. John Carroll (D., Colo.) says will benefit gas consumers by almost $29-million per year.

•

Congress will have to take additional action next year before the helium program can get fully under way. The present legislation gives the Interior Dept. authority to borrow from the U.S. Treasury to buy helium from private operators of the plants, but Congress must set the amount which can be borrowed each year.

•

The cost of shipping petroleum products by rail may rise if the Interstate Commerce Commission approves freight rate increases. The nation's railroads are preparing to ask ICC for increases on shipments of most commodities, expected to include petroleum products. The increase probably will average about 1%—adding some $3-million to the $300-million-a-year bill the petroleum industry already pays.



WITH HALLIBURTON

planning
products
performance

your decision

Begin programming your next fracturing treatment by calling in a Halliburton man. He will supply sound, seasoned advice to assist you in making profit-wise decisions.

FRICTION LOSS VS HORSEPOWER

Is it better to reduce friction loss or add more horsepower? Your Halliburton man is trained in showing you the alternatives with which to design your fracturing job. Let him point out the comparative advantages of fluids, additives and horsepower to help you select the best, most economical fracturing treatment for your well.

BE SURE YOU GET THE ENTIRE *FRACTURING STORY . . . CALL* HALLIBURTON FIRST!

a working partner
in your Fracturing
operation . . . the
HALLIBURTON FRACOMETER
. . . ask about it!

FRACTURING SERVICES

Halliburton
COMPANY • DUNCAN, OKLAHOMA

"Still on schedule. No mud problem."

Whether it is a mud engineer's report or a driller's log, in case after case Baroid's new concept of mud marketing gives you better results. You may save in total drilling time, avoid a costly fishing job, or make substantial savings on mud material costs. In any case, you profit because Baroid has integrated and streamlined every step in the mud process, from original source to your drilling rig.

Simplified operating procedures are the order of the day in the oil industry. When an oil industry supplier, such as Baroid, controls all its services from mines, plants, laboratories, field engineering, well logging, stores and accounting, increased efficiency and savings result for you. Only through this method can product quality and complete service be maintained at the highest level in a competitive market.

Wherever you drill, Baroid has mud stocks nearby. Delivery is fast and accurate. You can secure all needed mud materials from a single source. Baroid's third of a century in the mud business gives you the greatest depth of experience and breadth of service. Baroid's unified operation helps you keep rigs on schedule and operating costs at a minimum.

You save drilling dollars with a Baroid mud program!

BAROID

BAROID DIVISION NATIONAL LEAD COMPANY

MAIN OFFICE: P. O. BOX 1675, HOUSTON 1, TEXAS

6047

Drill Collar Is Anchored to Wellbore

Jersey Production Research Co. has taken the wraps off three new drilling tools and a logging tool.

Of the drilling tools, two are designed for research purposes. The third is intended for downhole application where high bit loads are required to attain desired penetration rates. The log, recently licensed for industry use in Canada, is strictly a production tool.

All are in line with the research company's so-called "money-oriented" approach to oil research. Says T. O. Allen, manager of JPR's Drilling & Development Division: "Our drilling research program is money-oriented rather than problem-oriented. In other words, our research is largely confined to areas where the parent company spends most of its producing dollars, or where earnings can be appreciably increased."

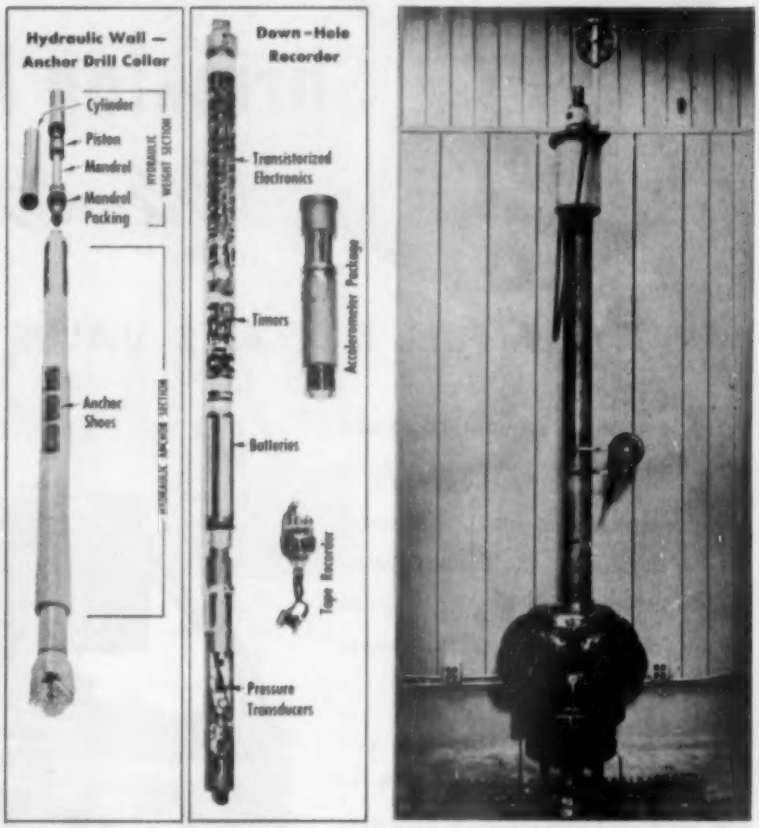
JPR's hydraulic wall-anchor drill collar undoubtedly will have the greatest and most direct impact on oilwell drilling technology. It permits application of "weight" on the bit without use of conventional drill collars.

The prototype tool is 6 in. in diameter and 37 ft. long, and weighs 2,200 lb. It can exert a force of more than 40,000 lb. at a pressure drop of 1,000 psi. across the bit, roughly the equivalent of 450 ft. of standard 6⅝-in. drill collars.

Basic components of the tool include a hydraulic weight section containing an outer cylinder and an inner piston and mandrel; a hydraulic anchor section consisting of outer steel case, inner mandrel, and pistons; and diaphragm-type anchor shoes (drawing, right). The inner portions of the tool rotate with the remainder of the drillstring.

Anchor shoes in the prototype model are expanded against the borehole walls by increasing pump pressure at the surface. Expanded under about 2,700 psi. hydraulic pressure when unsupported at the surface, the shoes normally are expanded under downhole pressure conditions at pump pressures of about 8,000 lb. to 9,000 lb. Expansion of the shoes is designed to be effective in hole diameters up to 6¾ in., but JPR engineers say that overgauges up to 1 in. can be tolerated.

Momentary decreases in slush pump pressures are required to retract the shoes in the present model each time the tool's piston reaches its maximum stroke of 2 ft. An experimental model now being evaluated, however, will automatically vent fluid to the annulus when the piston completes its stroke, thereby reducing internal pressure and retracting the shoes.



HYDRAULIC WALL ANCHOR DRILL COLLAR (left) applies "weight" on a bit hydraulically. The downhole recorder (center) measures, among other things, weight and torque on a bit. The high-pressure chamber (right) is used for rock research.

The hydraulic wall-anchor collar was used successfully in drilling 2,800 ft. of hole in 300 rotating hours.

In a field test last month near Midland, in West Texas' Permian Basin, 500 ft. of hard formation between 2,000 and 2,500 ft. were cut with the tool in 45 hours, using three conventional jet bits. Though time requirement and number of bits showed no significant improvement over conventional bit-loading methods (drill collars), the tool demonstrated conclusively that it could be used under hard-rock drilling conditions.

Previous testing had been done in shallow holes drilled through relatively soft Pennsylvanian formations underlying the Tulsa laboratory test grounds.

JPR researchers say the tool has shown four advantages, with two other benefits possible but yet unproved. The observable advantages are:

- **Increased bit weight under the surface.** Where previously it has been necessary to drill several hundred feet of surface hole before weight could be placed on the bit, near-surface hard-rock formations now can be drilled under the same bit loads as can be imparted by drill collars in deeper rocks.

- **Increased depth capacities for relatively light rigs.** JPR engineers see this as a particular advantage in jungle areas, where drilling equipment must be flown in by aircraft. It is considered likely that, in some cases, capacity of a 10,000-ft. rig could be in-

Shrinking Dollars *Mean Shrinking Profits*

ALWAYS A FULL DOLLAR'S VALUE FROM AJAX

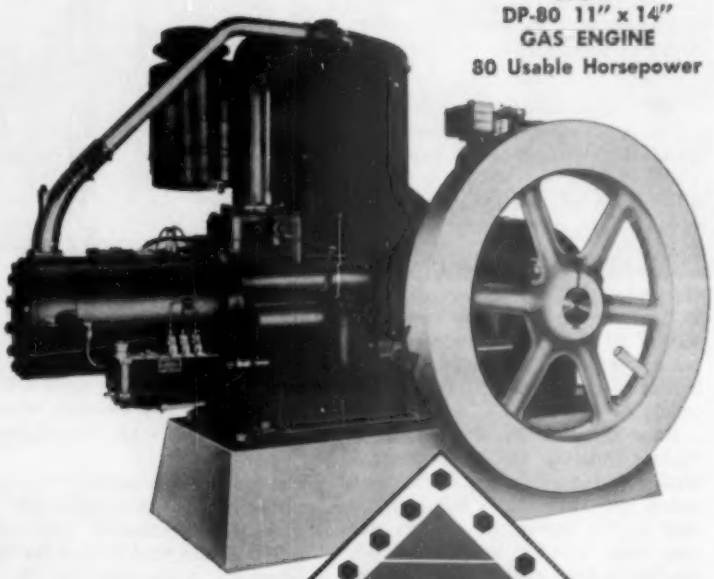
Equipment investment costs are more critical today than ever before.

Awareness of this fact is the reason for the addition to the famous craftsmanship quality line of Ajax Engines of this new intermediate 80 Usable horsepower unit.

With Ajax you don't have to buy more than you need in horsepower to still have a safety reserve and economical operation.

Simple but massive construction for easy low cost maintenance and long life — rugged special clutch for limited attendance — thermo-syphon cooling — are just a few of the full dollar value Ajax features . . .

Introducing the NEW DP-80 11" x 14" GAS ENGINE 80 Usable Horsepower



AJAX

AJAX GAS AND OIL ENGINES

AJAX IRON WORKS CORRY, PENNSYLVANIA

Oil Field Distributors

- The National Supply Co. — Pittsburgh, Pennsylvania
- Bethlehem Steel Co. — Supply Division, Tulsa, Oklahoma
- Mid-Continent Supply Co. — Fort Worth, Texas

creased by as much as 4,000 to 5,000 ft. by reducing hoisting requirements.

• **Reduced trip time.** Studies have shown that drill collars require up to four times as long to handle on the rig floor as does drillpipe.

• **Reduced investment and maintenance costs.** Tests have shown that seal life is a minimum 100 hours. Anchor shoes have had no operational failures in 65 hours, and showed little change in quality.

Possible advantages being studied by the research center's engineers include longer bit life and decreased hole-deviation problems.

Reduced "whipping" by lengthy strings of drillpipe and collars when the wall-anchor collar is placed will, JPR engineers believe, result in better bit performance and longer life.

In addition, the wall-anchor collar, acting as a fulcrum immediately above the bit, will force the bit in the desired vertical direction rather than along lines of least stratigraphic resistance.

Another of JPR's new developments is a special high-pressure "chisel-impact" chamber used to measure the impact strength of rocks under simulated bottomhole pressures.

The goal of this project is to obtain a better understanding of how drill bits penetrate deep-lying rock strata. A single chisel, simulating one tooth of a bit, is dropped repeatedly on a rock specimen contained in the pressurized compartment (picture, page 21).

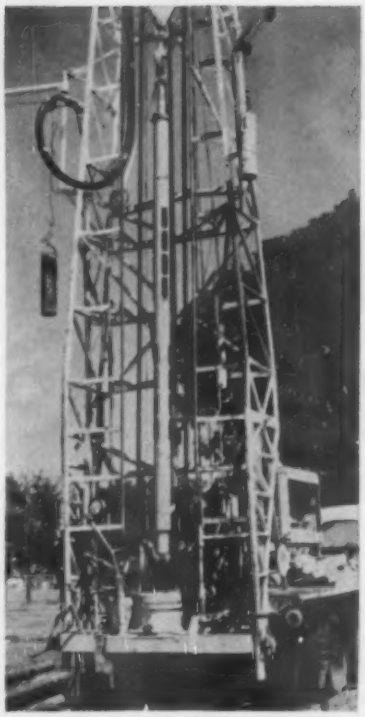
Similar studies have been conducted in the past, but none which permitted in-motion studies. To facilitate this objective, the JPR chamber contains four viewing ports, containing specially made lucite plugs, which permit TV monitoring and high-speed motion picture studies.

The camera used for this purpose takes films at speeds up to 9,000 frames per second.

Closed-circuit television is used for semidirect observation of the action of the chisel on the rock when permanent records are not required.

The chamber has a hydraulic system whereby the rock sample is subjected to three independent pressures —formation, overburden, and mud column. Maximum pressures of 15,000 psi. can be obtained for any or all of the three functions.

When the chisel is dropped, electronic gauges measure and record resulting loads, displacements, and volume of rock removed, thereby adding to and verifying the visual record.



ANCHOR SECTION of the new wall-anchor drill collar hangs in a portable rig.

Though it's been used in the laboratory less than two months, the chisel-impact chamber already has led to one important finding.

The researchers have learned that for any given rock sample, the higher the pressure, the greater the chisel (or bit tooth) bounce, and the smaller the amount of rock removed at each impact.

Though stressing that further evaluation of this phenomenon will be required, a JPR engineer observes that, "The logical assumption is that greater bit loads are required in direct proportion to increasing bottomhole pressures."

The third development is a downhole recorder for measuring various factors influencing bit performance.

R. J. Howe, JPR section head, notes that, "Never before has it been possible to determine the precise environment in which the drillbit operates. This new tool should lead to some significant improvements in drillbit design and manner of use."

The new tool (drawing, page 21) measures and provides an analog recording of (1) weight and torque placed on the bit; (2) vertical, angular, and lateral accelerations; (3) pressures within the drillpipe and in the annular space; and (4) bottomhole temperature. Measurements are made while the bit is in motion by means of stress and strain indicators whose electrical resistance undergoes alteration as they are subjected to distortion.

The downhole recorder, which is 15 ft. long and 6¾ in. in diameter, is run in the drillstring immediately above the bit.

Data is recorded on Mylar tape by an eight-channel, transistorized recorder recently developed for the missile industry. It is only 4 in. in diameter.

Total recording time provided by the downhole recorder is two minutes. The researchers already are working on a refinement of this tool whereby drillbit data can be transmitted direct to the surface via wireline or other means, thus giving a continuous recording of downhole happenings without need for pulling pipe.

Howe says the downhole recorder has been subjected to ten tests at shallow depths, which demonstrate that it is field-worthy. Though the results of these primary tests are yet to be thoroughly analyzed, one conclusion has been reached: Bits are subjected to a far wider range of loads and frequencies than has been generally suspected.

The wireline, through-tubing logging tool developed in recent months by JPR locates points of fluid entry into the wellbore of a producing well.

The tool, made available commercially in Canada through a license granted to the Birdwell division of Seismograph Service Corp., is expected to be made available to U.S. operators soon.

The device, known as a "fluid-entry analyzer," locates the points of water, gas, or oil entry into the wellbore, then determines the density of the fluids through a measurement of the radiation intensity of gamma rays (following passage through the fluids) emitted by a radioisotope.

Combined with the inflatable packer flowmeter developed recently by the Humble division of Humble Oil & Refining Co., the fluid-entry analyzer has some added applications: For the first time, simultaneous measurements of location, direction, amount, and type of fluids entering the wellbore are possible.

In service, the fluid-entry analyzer is lowered on a wireline through standard 2-in. tubing. Use of a pressure sealing lubricator on the wellhead permits any combination of the tools to be run while the well is actually flowing.

The tool was recently tested successfully in six Canadian wells.

Sacramento Valley's . . .

Oil Discovery May Have Big Impact

Texaco Inc.'s oil discovery in California's gas-productive Sacramento Valley is reviving exploratory interest. A spasmodic oil flow ranging as high as 154 b/d of 30-gravity crude (PW—Aug.26'60,p6) may cause California exploratory personnel to revise their thinking about the state's prospects.

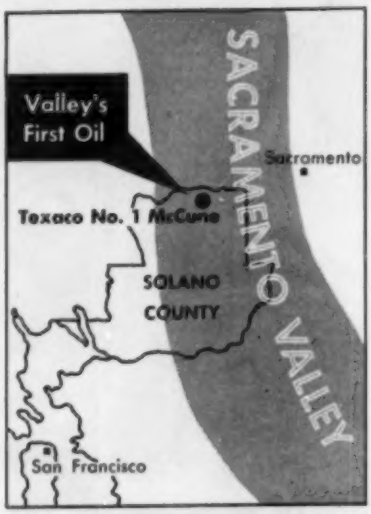
The first tangible result is a fast-moving leasing play. Leasing in Solano County is reported to have more than tripled since the disclosure of the oil flow.

In months to come, say observers, the valley is expected to enjoy even healthier drilling activity than it has this year, which has been at a record-breaking pace.

The valley has become synonymous with gas exploration in California, though wildcatters have sought oil there since the 1920s.

The Texaco well is surprising in two aspects: (1) It is the first oil for the valley; and (2) the oil comes from a formation uncommon to oil production in California.

The well, No. 1 McCune, section 32-8n-1e, Solano County, at the southern end of Winters gas field, was completed in Sept., 1959, for 5.6-million cf/d of gas through 24/64-in. choke and perforations at 5,502-85 ft. in a Cretaceous sand.



It was shut in until mid-April, when pipeline connections were made.

Oil was discovered when the well was put on production, though not disclosed until Texaco started mailing royalty checks for oil instead of gas.

Production from the well rises and falls, and is strongest after the well has been shut in.

The fact that the oil comes from a sand of Cretaceous age could cause some radical changes in geological thinking in California.

Only slight oil production has been developed in the state from the Cretaceous, mainly in the Chaney Ranch and Coalinga fields of Fresno County.

As a result, the horizon has not been a notable target. In fact, in at least one province—the Cuyama Valley—it has been regarded as basement.

Observers say the Texaco well could lead to the drilling of Cretaceous tests not only in the valley, where the sand normally has been productive only of gas, but also in California oil regions.

There's no question but that additional drilling will be required to evaluate the significance of the Texaco well.

It's an old story that one well doesn't make a field, and it's a fact that the success ratio at Winters field prior to the No. 1 McCune stood at one abandonment for every gas completion.

Texaco is now busy planning additional locations. And at least one other major company with leases in the area is keeping a close eye on developments.

Mud Log Defines Elusive Pay Sections

Field results are proving that the use of a steam-still in conjunction with a chromatograph permits successful quantitative analyses of the hydrocarbon content of drilling-mud samples.

Gas chromatography has been in general use for some time as a helpful technique in spotting elusive pay sections that have been hard to detect by other means.

But the results obtained were largely of a qualitative nature. The new system devised to pinpoint the amounts of hydrocarbons was developed by Baroid division of National Lead Co.

This new mud analysis system—known as the PPM Log—measures and records the methane, ethane, propane, butane, and pentane plus the remaining heavier hydrocarbons in parts per million of mud volume.

Standard mud logging usually must be determined in advance of drilling a particular zone.

With the PPM Log, however, it's necessary only to collect samples of mud during drilling. If additional information on a questionable zone is needed later, the mud samples collected just above, through, and below the zone may be submitted for analysis.

The steam-still removes nearly all of the hydrocarbons from a drilling mud sample. The resulting concentrated vapor is analyzed quantitatively for specific hydrocarbon content by the chromatograph.

(The chromatograph is a catalytic detector which slows up various components according to their molecular weight. It is made quantitative through calibration.)

The key to this logging method is the steam still, which makes possible the separation of the hydrocarbons from the mud. The steam-still consists of a boiler, a mixing chamber, and a condenser.

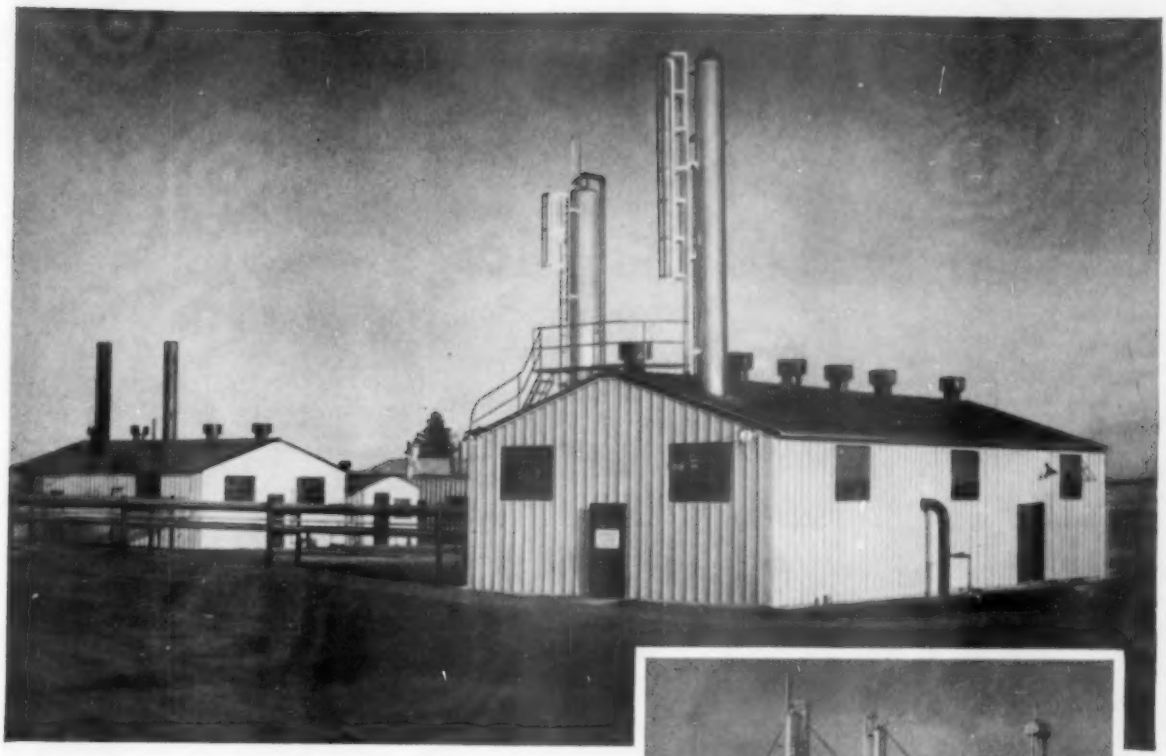
The boiler is heated to produce a steam pressure of 10 to 15 psi. A sample of mud, usually of 2 to 5 milliliters, is injected into the mixing chamber and diluted by some 25 ml. of water.

Then some 2,000 to 3,000 ml. of steam sweep through the mud, carrying the hydrocarbons into the condenser, where they are collected in a hypodermic syringe.

The gas sample then is injected into the chromatograph, where the results are recorded in parts per million of the several hydrocarbon gases present in the mud sample.

The PPM Log system is said to have recorded pay zones that weren't apparent with conventional logging.

In one instance, for example, Baroid says the PPM Log "indicated poten-



QUALITY!

standardized for economy

. . . pre-engineered Butler buildings

When you build a Butler refinery building, you build with standardized quality . . . with pre-engineered components of predictable precision and performance. The key to this combination of quality and economy, through standardization, is a core of clear-span, rigid frame structurals covered by the finest curtain wall systems available for pre-engineered buildings.

Whether your buildings are large or small, Butler offers you the largest variety of sizes and shapes of structurals . . . all pre-engineered and factory-fabricated for mass-production economies. And, whatever the end use may be, there's a Butler superior curtain wall system that is the standard of quality. Choose Butlerib,™ the finest all-purpose wall and roof panel for all-metal buildings. It's precision-formed for perfect weathertight fits, and completely firesafe. For offices and laboratories, exclusive Monopanl® offers you exceptional ease of construction and maintenance-free economy with factory-fabricated, factory-insulated, firesafe wall panels.

Before you build a refinery building for offices, laboratories, maintenance sheds, unit control buildings, warehouses . . . large or small, you name it . . . call your Butler Builder. You'll have at your command the greatest variety of shapes, sizes, materials and wall systems in the industry. Financing available. You'll find him listed in the Yellow Pages under "Buildings" or "Steel Buildings". . . or write direct.

"See Sweet's Industrial Construction File — Section 6-B"

MBMA

BUTLER

BUTLER MANUFACTURING COMPANY

7412 East 13th Street, Kansas City 26, Missouri

Manufacturers of Metal Buildings • Plastic Panels • Equipment for Farming, Transportation, Bulk Handling, Outdoor Advertising • Contract Manufacturing

Sales offices in Los Angeles and Richmond, Calif. • Houston, Tex. • Birmingham, Ala. • Kansas City, Mo. • Minneapolis, Minn. • Chicago, Ill. • Detroit, Mich. Cleveland, Ohio • New York City and Syracuse, N.Y. • Washington, D. C. • Burlington, Ontario, Canada

REED

THIS IS THE QUALITY LINE

WHEN YOU RUN REED you know that the product is reliable. Every Reed product you use bears the Reed "Mark of Quality." This means that rigid quality control procedures have inspected and tested it all the way through the manufacturing process.

WHEN YOU RUN REED you know that you are using equipment that embodies the most advanced engineering principles. Reed leads the way in tool joint, rock bit, and drill collar design — engineering advances that mean the Reed products will wear longer and perform better.

WHEN YOU RUN REED you get service that can't be matched in the oil fields. The Reed man is at your service 24 hours a day — and he likes to give you the service that keeps you happy and makes you money.

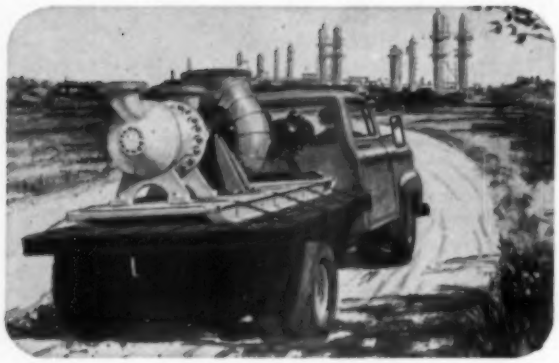
RUN THE QUALITY LINE on your next well — Reed Tool Joints, Reed Rock Bits, Reed Drill Collars — you'll be glad you did. Call the Reed man near you for the full story.

REED ROLLER BIT COMPANY • Houston 1, Texas

EXPORT OFFICE: TIME and LIFE BLDG., SUITE 3744 ROCKEFELLER CENTER, NEW YORK 20, N.Y.

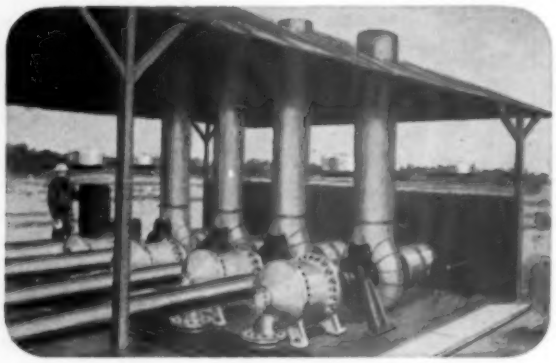
GULF COAST, MID-CONTINENT, ROCKY MOUNTAIN AND CANADIAN DISTRIBUTOR FOR MARTIN-DECKER PRODUCTS

Petroleum industry benefits with Solar turbomachinery



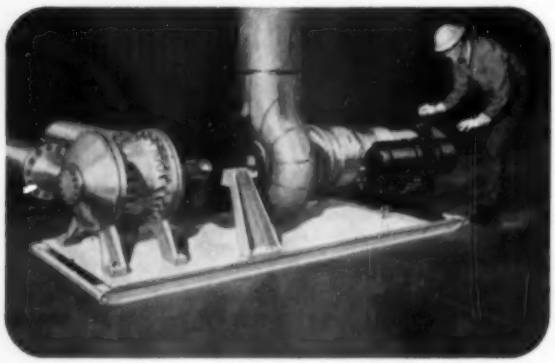
1. Easily transported

Because they are smaller and lighter than conventional power plants, Solar gas turbines are easily transported for original installation, or to a central shop for periodic maintenance. And the basic power plants, or generator sets, compressor units, and similar applications, can be inexpensively adapted for portable use.



2. Low cost installation

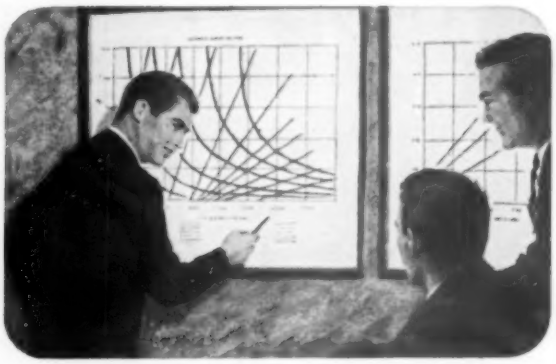
The same light weight and small size that makes transportation simple, also cuts the cost of installing Solar gas turbines and turbomachinery. Minimum vibration makes possible skid mounting or the use of present light foundations – you avoid heavy construction costs and install these units quickly without special labor requirements.



3. Simple maintenance

Solar gas turbines are simple in design, with few moving parts. They are easier to maintain than diesel or gasoline engines. Down time is cut to a minimum. Features such as interchangeable compressor wheels in Solar compressor units make quick field changes possible. Solar turbomachinery is designed for long, trouble-free life.

SOLAR
AIRCRAFT COMPANY
A subsidiary of International Harvester Company



4. Low over-all cost

Whether you consider the capital cost of installed horsepower, or operating and service costs per installed horsepower, you will be pleasantly surprised when you measure Solar gas turbines against competing installations. We'll furnish the facts and figures you need on request. Solar builds turbines and turbomachinery to rugged industrial standards, for electrical power generation, gas compression, pumping, boat and vehicle propulsion, and for many special applications. Solar gas turbines range in size from 50 to 1250 hp.

You should investigate the profitable use of Solar gas turbines and turbomachinery. Write to Solar Aircraft Company, Dept. H-156, San Diego 12, Calif., for brochures or for information about specific applications.

tially productive sections" in a south Louisiana well where conventional logging methods "failed to define all the productive zones."

One of the sections defined by the PPM Log is producing 140 b/d of oil, Baroid notes.

The technique permits fast analysis either in the field or the laboratory. A complete chromatogram can be obtained in four minutes, Baroid says.

Other advantages listed by the company are:

- By using a fixed volume of mud—usually 5 ml.—the actual parts per million of each hydrocarbon in the mud can be determined.
- Variables due to change in mud properties, trap efficiency, etc., are eliminated.
- The heavier hydrocarbons—butanes and pentanes—appear in their true magnitude.
- Unlimited sensitivity can be obtained by using larger samples of mud.

Where mud logging is conducted during drilling, the technique can be utilized in conjunction with it. Where the drilling rate doesn't permit sample collecting at the normal 2-ft. intervals, mud samples are collected through pay shows in bottles, and are analyzed when the situation permits.

What's New / IN EXPLORATION, DRILLING, PRODUCTION

Giant Seeligson Unit Is Extended Again

The big Seeligson field unit in Jim Wells and Kleberg Counties, South Texas, has been enlarged by another 4,565 acres.

The unit extension, effective Sept. 1, contains 121 wells having 150 completions. The enlargement, second since the unit went into operation Mar. 1, 1958, lies on the Kleberg County (east) side of the old unit boundary.

All new acreage and wells added to the unit were formerly operated by Humble division of Humble Oil & Refining Co. Sun Oil Co. will continue as operator of the enlarged unit, which now has a total of 952 completions in 672 wells. There are 66 different reservoirs.

•

Method of Setting MPR Is Changed at Pembina

The type of flood mechanism being used will determine the pressure maintenance Maximum Productive Rate allowed in Alberta's Pembina Cardium pool.

The Conservation Board made the decision late last month following a hearing in July.

Thus, for Pembina, two pressure maintenance MPR's will take effect initially: one for waterflood projects and the other for miscible-phase flood projects. "An MPR for full pressure maintenance by gas will be established later if such a project develops," the board said.

Under the new system, "future MPR's in Pembina shall be based on the flood mechanism being practiced, as such mechanism—if used throughout the pool—would affect the rate of production and recovery of the average well in the pool."

Prior to this, Pembina pressure maintenance MPR's have been based on individual project productivity and performance.

•

Offshore Co. Buys Barges

Offshore Co., Baton Rouge, La., has purchased two offshore drilling barges from DeLong Corp.

One of the two barges currently is being used in the Persian Gulf, the other is operating in the Gulf of Paria, off Trinidad. Consideration was not disclosed.

Offshore Co. also acquired an exclusive license to make, use, sell, or rent DeLong's jacking mechanisms, platforms and structures utilizing DeLong patented designs and inventions.

•

Phillips Petroleum Co. has acquired an estimated 100,000 acres in oil and gas leases in southwest Utah.

The area, along the Paunsaugunt Plateau, has seen little or no drilling. It's reported that Phillips plans a Cretaceous test in Garfield County.

•

Roderick A. Stamey's request for a 25-year lease to a sizable chunk of state-owned lands has been approved by North Carolina's Board of Conservation and Development.

The Houston operator, who has reported finding traces of oil in two previous wildcats in the area, plans to drill 40 tests.

The area leased lies between New Bern and Beaufort and out to the 3-mi. limit offshore at the South Carolina border, inland to Tabor City across to Faison and back again to New Bern. The lease calls for drilling at least 12,000 ft. of hole every two years.

•

California's Lands Commission will schedule public hearings to consider offering a 2-mi.-wide strip offshore Oxnard, Ventura County, for competitive bidding.

The proposed area contains some 2,560 acres.

The commission also may ask for waivers from Santa Barbara County to breach present lease conditions preventing offshore platforms from being built less than 1 mi. off the county shore line.

Frank Hortig, executive officer of the commission, said waivers would be asked only under unusual conditions.

•

Atlantic Refining Co. and Reynolds Metals Co. have announced a way to boost fracture capacity by using malleable aluminum particles (PW—Sep.2'60,p21).

Atlantic says use of the pellets can increase well output up to 250% or more.

The development is being made available to four service companies—B. J. Services, Inc., Dowell division of Dow Chemical, Halliburton Co., and Western Co.

•

Bidders offered $213,089 for 13,771 acres of tribal and allotted Blackfeet Indian lands in northwest Montana.

Highest per acre bonus offered was $52 per acre for 160 acres in section

"riggin' experts"

As delegate to a political convention, Joe Roughneck says he found out there's more to "rigging" than he'd thought. But on home ground, Old Pro Joe knows what to expect, when he's choosing supplies for oil well drilling. Joe demands Lone Star pipe because he knows he can depend upon its tough reliability. Made to API specifications, Lone Star casing, tubing and line pipe undergoes exacting quality control and multiple testing. It's conveniently available too. Made in the heart of the oil country, Lone Star pipe is deliverable overnight to 75% of Mid-Continent producers.

Neighbor, wherever you are, specify Lone Star and we both get a good deal.

© 1956 Lone Star Steel Company

Lone Star STEEL COMPANY

EXECUTIVE—SALES OFFICES
W. Mockingbird Lane at Roper • P. O. Box 12226 • Dallas, Texas
DISTRICT SALES OFFICES
912 Republic National Bank Building, Dallas, Texas
Houston, Texas | Midland, Texas | Tulsa, Oklahoma

33-32n-6w by C. R. McShane, Cutbank. McShane also paid $19 per acre for the northeast quarter of section 33.

Just 51 of the 251 tracts offered, covering 61,772 acres, drew bids.

•

Southwest Research Institute's "Project One Thousand" will involve development of more efficient drilling tools.

The San Antonio (Tex.) center has been engaged for the project by Weatherford Oil Tool Co., Houston. The project will involve development of a drillable combination float shoe and bit, liner hanger, and setting tool, which will enable a liner to be run to bottom and be reciprocated or rotated, or both, during the process.

•

Some 140,000 acres of state-owned lands will be offered for oil and gas lease next week in Michigan.

The Sept. 14 sale will be the second largest on record. It reflects a revival of drilling interest touched off by the Albion-Scipio play in south-central Michigan.

The leases to be offered are scattered over 30 counties.

•

Drilling Highlights

New Mexico—Cabeen Exploration Corp. No. 1-K State, section 11-10s-32e, Lea County, was completed for 364 b/d of 43-gravity crude and 311,000 cf/d of gas through 24/64-in. choke and perforations at 8,354-771 ft. in the Wolfcamp. The discovery is 2½ mi. northeast of Mescalero field.

In San Juan County, Delhi-Taylor Oil Corp. No. 1 Delhi-Mudge, section 10-31n-11w, was completed for 3.4-million cf/d of gas through perforations at 7,078-355 ft. in the Dakota. Nearest Dakota production is 6 mi. southeast at Blanco field.

Oklahoma—Cleary Petroleum Inc., et al No. 1 Hilltop, section 16-8n-5w, Grady County, flowed gas at the rate of 31-million cf/d and recovered 10 bbl. of condensate on 35-minute drillstem test at 11,708-71 ft. in the Massive Bromide sand. The prospect is 30 mi. north of Ordovician production in the Chitwood, Carter-Knox area.

Colorado—Pure Oil Co. No. 3 Southeast Lisbon-USA, section 16-44n-19w, San Miguel County, flowed

gas at the rate of 6.3-million cf/d and recovered 70 bbl. of condensate on 15-minute test through 32/64-in. choke and perforations at 9,054-62 ft. in the Mississippian. The well is 1½ mi. southeast of No. 2 Southeast Lisbon, which is shut-in.

West Texas—Atlantic Refining Co. has set a new producing depth record for Texas in its No. 1 J. C. Kelly, section 81, block 51, T-10, T&P survey, Pecos County, four-pay gas discovery, flowed 16.1-million cf/d through perforations at 15,831-982 ft. in the Devonian; 10.8-million cf/d through perforations at 16,061-170 ft. in the Fusselman (Silurian); 7.7-million cf/d through perforations at 16,228-402 ft. in the upper Montoya; and 4.6-million cf/d through perforations at 16,550-680 ft. in the lower Montoya. All flows were through ½-in. choke. Closest comparable production is 38 mi. northwest, in Toyah Siluro-Devonian field.

South Louisiana—An-Son Petroleum Inc. No. 1 Marrero Land & Development Co.-West Bank Development Co. et al, section 26-14s-23e, Jefferson Parish, was completed for 201 b/d of 32-gravity oil through ⅛-in. choke and perforations at 9,200-04 ft. The wildcat is 6 mi. west of Stella field.

Wyoming—HLM Drilling Co. No. 1 Government-Calco, section 22-48n-76w, Campbell County, recovered 405 ft. of gas-cut oil, 90 ft. of slightly muddy gas-cut oil, 90 ft. of muddy, gas- and water-cut oil, 180 ft. of gas- and slightly oil-cut muddy water, and 270 ft. of muddy water on 2½-hour drillstem test at 7,369-78 ft. in the Parkman. The prospect is located 5 mi. to the west of Parkman production at the south end of Dead Horse Creek field.

North Louisiana—McGoldrick & Watson Drilling Co. No. 1 J. A. McMillan, section 15-8n-6e, Catahoula Parish, was completed for 209 b/d of 41-gravity crude through ⅛-in. choke and perforations at 4,371-72 in the Wilcox. The well is located 1½ mi. to the west of the Patton Church field.

Texas Panhandle—Union Oil Co. of California No. 1-58 Cullen & Pilbrick, section 58, block 13, T&NO survey, Ochiltree County, was completed for 190 b/d of 38-gravity oil through ½-in. choke and perforations at 8,125-35 ft. The discovery is 1 mi. east of Morrow gas production in the Farnsworth area.

GEM
OF THE
OIL AND GAS
INDUSTRY

Pipe at Lone Star Steel is made under ideal conditions by craftsmen as exacting as a jewel cutter.

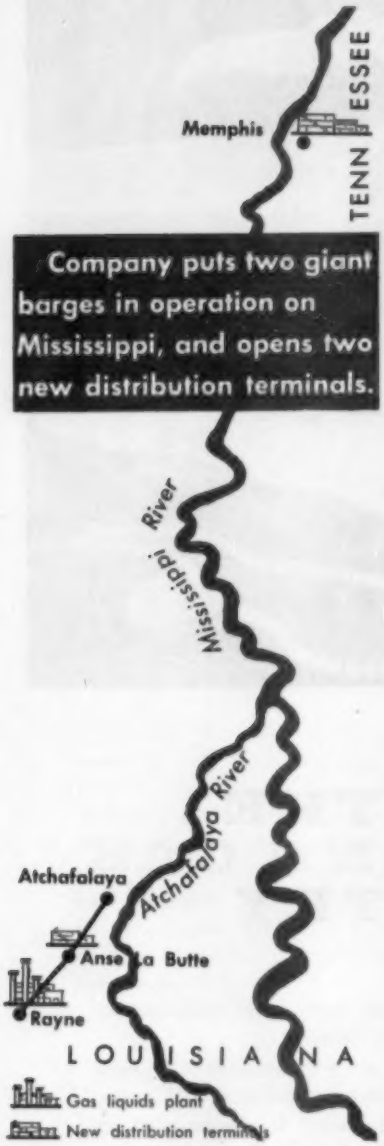
Every facet of Lone Star pipe-making is subjected to repeated inspection to assure a flawless product. Lone Star API casing, tubing and line pipe . . quality protected from mining of ore to finished pipe . . is the hallmark of fine craftsmanship.

That's why Lone Star is called the gem of the oil and gas industry.

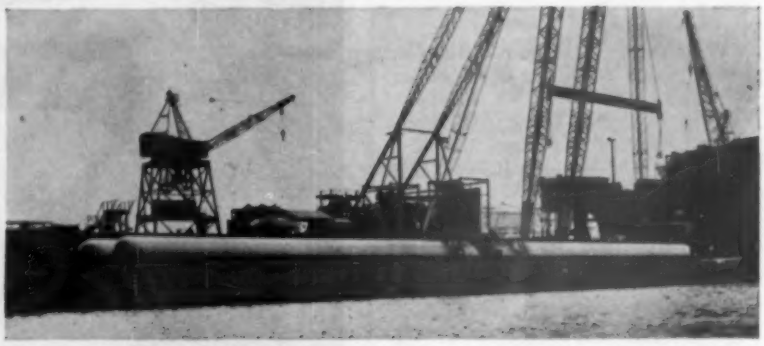
Lone Star STEEL COMPANY

EXECUTIVE—SALES OFFICES
W. Mockingbird Lane at Roper • P. O. Box 12226 • Dallas, Texas
DISTRICT SALES OFFICES
912 Republic National Bank Building, Dallas, Texas
Houston, Texas | Midland, Texas | Tulsa, Oklahoma

Union Texas Boosts LPG Deliveries



LOADING RACK at Anse La Butte, La.



PROPANE BARGE is readied by Avondale Shipyards for delivery to Union Texas.

An integrated waterway and land transportation system to deliver LP-Gas from southern Louisiana to the Memphis area was opened by Union Texas Natural Gas Corp. last week.

In putting its new transport facilities in full operation, the company said it believed its new system would result in "speedier and more stabilized deliveries" to the Memphis distribution area.

The LPG will originate at Rayne, La. Pipelines will carry both propane and butane to Anse La Butte for truck or rail loading, and propane to Atchafalaya for barge pickup (map).

The LPG will come from the gas processing plant that Union Texas owns at Rayne.

A 6-in. line and a 4-in. line link Rayne and Anse La Butte. The former carries propane, the latter butane.

A 6-in. propane line will run 15 mi. from Anse La Butte to the Atchafalaya loading dock.

The intermediate terminal at Anse La Butte is the nucleus of the multimode transport network, in that it serves as the main storage depot, and contains rail- and truck-loading facilities.

Capacity of storage facilities completed at the terminal to date is 35-million gal.

Two of four salt-dome storage wells planned for the terminal, each with a capacity of 14.7-million gal., have been washed out, and one is already in service.

Another is half complete, and a fourth has been drilled.

Aboveground, there are four 30,000-gal. tanks, two for propane and two for butane.

In the future, storage will also be provided for isobutane, Union Texas says.

Two barges, with a capacity of 600,000 gal. each, were built for Union Texas by Avondale Shipyards, Inc., to carry propane from Atchafalaya to Memphis.

The giant vessels are of the open-hopper design.

Each holds four saddle-mounted independent cargo tanks, 113 ft. long and 16 ft. wide. Liquid—or "water-fill"—capacity of each tank is 165,000 gal., but propane capacity is 150,000 gal.

The tanks were constructed of 1 9/16-in. shell plate, which was cold-rolled.

The Atchafalaya loading dock incorporates several unusual design features.

Because of variations in the water level on the Atchafalaya River, three decks had to be built, each 10 ft. apart.

Permanent loading-hose connections were installed at each level.

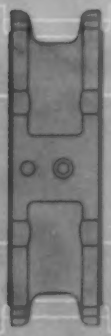
Each deck, however, does not have its own permanent lighting system for night work, because the wiring would be inundated when the water rose, and eventually ruined.

Instead, Union Texas designed a portable lighting unit, which can be carried to the two lower decks through holes as the river recedes.

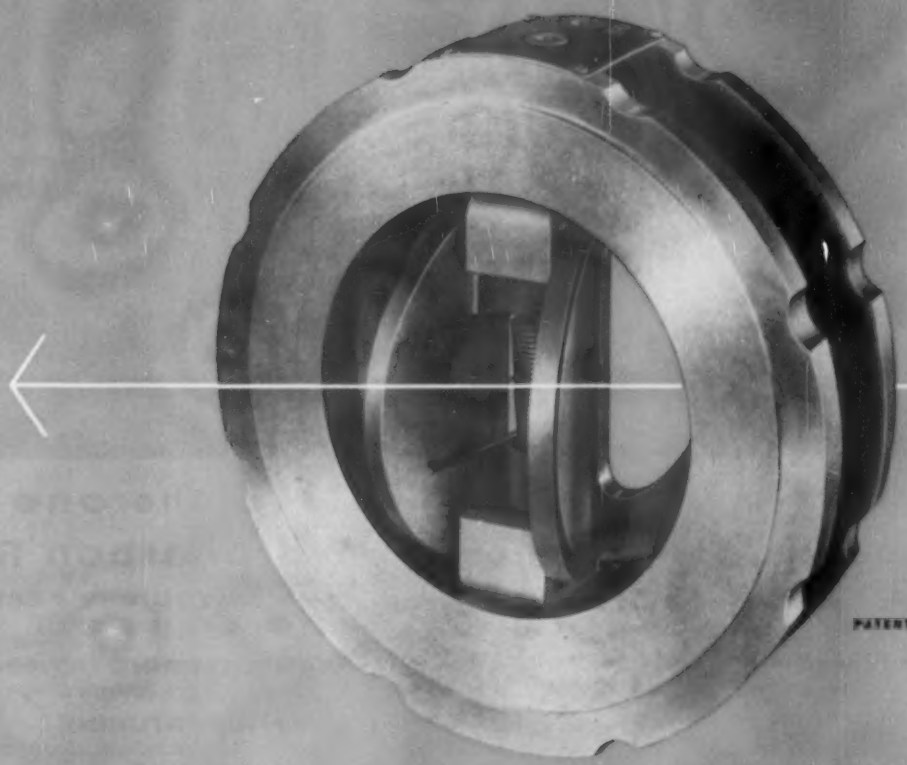
In addition, four other problems had to be coped with in the subtropical bayou region: rains, snakes, pilferers, and vapors.

A solid roof was laid over the loading apparatus against the rain. For siding, to keep out intruders and also permit ventilation, a special chain-link fencing was used. Snakes, which infest the river-bottom, are kept off

fits between the flanges



less space—weighs only 10% as much



PATENT PENDING

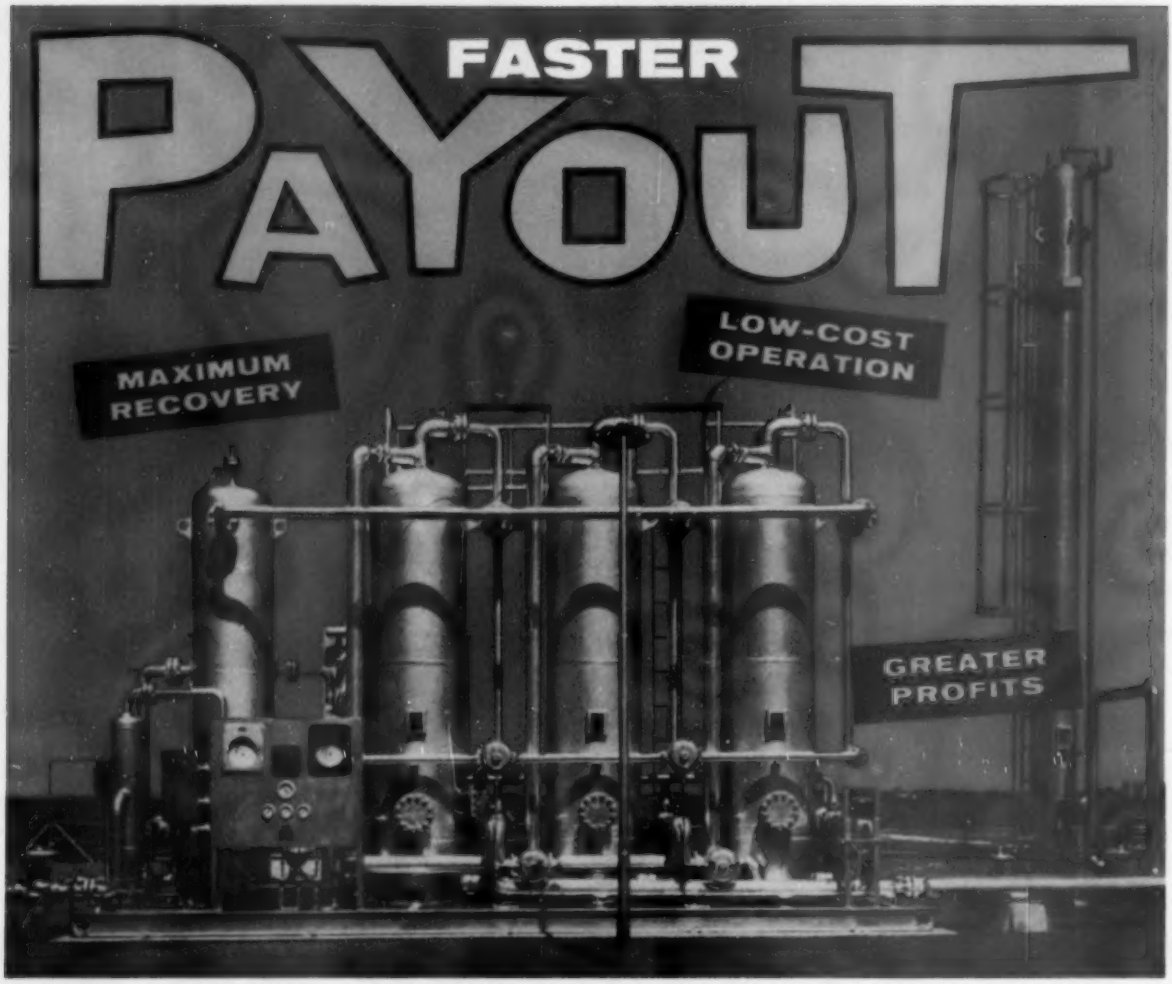
Mission Duo-Chek valves

Mission Duo-Chek Valves weigh approximately 10 per cent as much as conventional check valves. Smaller, lighter Duo-Chek Valves mean that you save on space, weight, installation, and price. But, you are getting a check valve with a bubble-tight seal, anti-slam closure, long life built in. No load is carried on the plate hinges. No external parts. No lubrication required.

The sine wave seal prevents seepage, yet holds without leaking or distortion at maximum test pressure. The sealing material is molded and bonded into a metal groove, making an "O"-ring type seal. Pressure deforms the packing. Metal-to-metal contact completely encloses the sealing material, preventing pinching off under pressure. Available in steel, 316 stainless, aluminum, and bronze to fit ASA raised face or ring joint flanges.

MISSION MANUFACTURING CO. P. O. BOX 4200, HOUSTON, TEXAS · CABLE ADDRESS "MISSCO"
EXPORT OFFICE: 30 ROCKEFELLER PLAZA, NEW YORK · In the United Kingdom: MISSION MANUFACTURING CO., LTD., 1 Hanover Square, London W. 1 England · cable address "MISSOMAN"

MISSION MANUFACTURING CO



PARKERSBURG DAU . . . the **one** unit that does the complete job of **Hydrocarbon Recovery**

From engineering design, through test assembly in the plant, to quick completion in the field, the PARKERSBURG DAU starts **saving** you money the day you place the order—starts **making** you money the day it goes on stream. That's why the PARKERSBURG unit has the quickest payout in the industry—that's why you should specify a PARKERSBURG DAU for maximum hydrocarbon recovery, with complete dehydration as an **extra bonus at no extra cost!**

WHEN YOU BUY PARKERSBURG YOU GET 'EM ALL!

ENGINEERING . . . Parkersburg patents the process, not just the equipment.

MANUFACTURING . . . Parkersburg units are backed by rigid systems of quality control.

INSTALLATION . . . Parkersburg equipment installations are supervised by experts.

SERVICING . . . Parkersburg trains your men, services your unit any time, anywhere.

SEE YOUR PARKERSBURG MAN TODAY!

THE PARKERSBURG RIG & REEL COMPANY
Division of Parkersburg-Aetna Corp.
PARKERSBURG • HOUSTON • COFFEYVILLE

PARKERSBURG—The FULL LINE in Pressure Vessels . . . Separators, Metering Equipment, Treaters, Heaters, Knockouts and Oil Skimmers, Scrubbers, Hyrecos, Hydrocarbon Recovery Units, Glycol Dehydrators, Stabilizers.

the loading site by a special vermin-proof fence built around its periphery.

The barge-loading pumps are located at Anse La Butte, and are directed from the dock at Atchafalaya over a leased telephone line.

Also incorporated in the pumping system is a high-pressure shutdown switch, which will automatically close delivery valves if normal operating pressures are exceeded, or if overfill is imminent.

The propane has a pressure of about 800 psi. as it enters the pipeline, and arrives at the loading dock under pressure of 250 psi. The line is capable of delivering 800 gal. per minute.

At the dock, to prevent excessive build-up of pressure during loading, vapor is drawn from the cargo tanks through a 3-in. hose. The vapor is then recirculated through the incoming liquid, which condenses it back into the stream.

Roundtrip from Atchafalaya to Memphis is about 1,000 mi. and takes a barge seven days.

Distance from the loading terminal to the juncture of the Atchafalaya and Mississippi Rivers is some 75 mi., and the trip up the Mississippi is 425 mi.

The unloading dock at Memphis is a larger version of the Atchafalaya facility.

Because of great changes in the level of the Mississippi at that point, the dock has five decks with 10-ft. spaces between them.

Actually, the Memphis terminal is located on Presidents Island in the Mississippi, which was recently joined by a land-barge to the shore. The cove thus formed provides a current-free harbor for unloading the barges.

Storage facilities at the terminal consist of 12 tanks with a capacity of 75,700 gal. each.

Four railroad tank cars and four tank trucks can be loaded simultaneously from the storage tanks.

Current plans call for distribution of only propane-butane mix from the terminal. The butane comes to Memphis direct by tank car from Anse La Butte.

At Anse La Butte, 20 railway tank cars and four tank trucks can be loaded simultaneously.

The terminal is situated on the mainline of the Southern Pacific R.R.

For extra safety in loading rail cars, loading arms are equipped with 2-in.-diameter steel loading pipelines, instead of the customary hoses.

Propane loaded at Anse La Butte is delivered to areas other than Memphis. The butane, however, is transported to Memphis.

What's New / IN TRANSPORTATION

Contracts have been awarded for the construction of three new crude pipelines—two in the U.S. and one in Canada.

General contractor for an 11.5-mi. extension of the Delta pipeline of Shell Pipe Line Corp., plus five pump stations, is J. Ray McDermott, Inc., New Orleans.

Curran & Co., Great Falls, Mont., will build the first section of the proposed line of Great Northern Ry. Co., from the Newburg, Wiley, and Glenburg pools to Minot (PW—Aug.12 '60,p51).

Majestic Contractors, Ltd., Edmonton, has been hired to build a pump station and a 36.5-mi. loop on the Swan Hills Edmonton line of Federated Pipe Lines, Ltd., Calgary.

•

Natural gas is now moving through the new 51-mi. pipeline of Trans-Canada Pipe Lines, Ltd., into the nearly completed line of Midwestern Gas Transmission Co.

The gas now being delivered is being used for purging and testing.

With completion of Midwestern's line this fall, Trans-Canada will begin shipment of 204-million cf/d.

•

Southern Natural Gas Co. has acquired the interest of Brown & Root, Inc., in Timcoat Corp., New Orleans, which is engaged in pipeline coating.

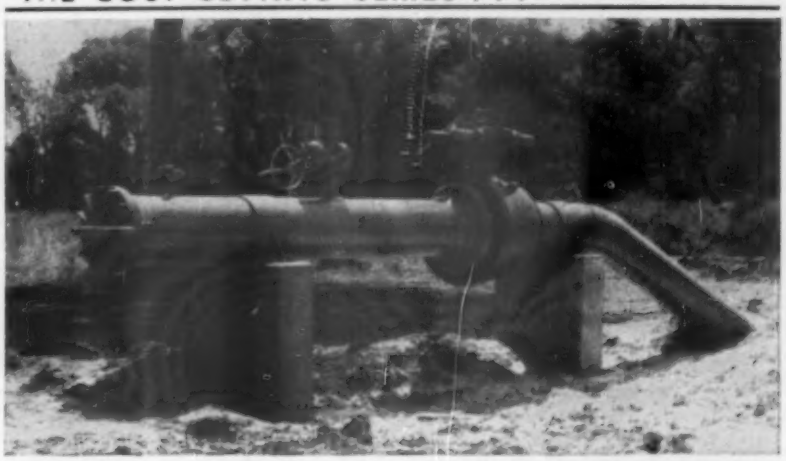
For the past five years, Timcoat has been producing a rubberized-asphalt mastic coating, reinforced with fiberglass, used principally on gas lines located in marshy areas.

•

Colorado Interstate Gas Co. last week refunded $2,699,121 to its 12 wholesale customers on 1958 and 1959 rates pursuant to a Federal Power Commission order.

Biggest beneficiary was Public Service Co. of Colorado, which got back $1,264,719.

THE COST CUTTING SERIES . . .



New Design Pipeline Valve is LUBRICATED

The Rockwell Hypresphere valve on a Louisiana scraper trap (above) has a full round opening that allows easy passage of all types of scrapers. It also has all the advantages of a lubricated plug valve . . . positive shut-off, quarter-turn closure and a fully protected lubricant seat. Six years of field tests have demonstrated to pipeline engineers that the Hypresphere stays leakproof and trouble-free on petroleum, crude, product and gas transmission lines. Maintenance costs are cut to a minimum, with only two moving parts in the Hypresphere, and lubrication prevents metal-to-metal wear. For complete information on the Hypresphere or full line of Rockwell-Nordstrom valves, write:

ROCKWELL MANUFACTURING COMPANY
PITTSBURGH 8, PA.

Venezuela Lifts Refinery Penalty

CARACAS—Venezuela last week took one small step toward stimulating exploration, with a special tax exemption for Texaco.

In this case, the government temporarily lifted the 8% penalty tax it imposes on Venezuelan crude from new concessions that is refined in certain Caribbean countries—in order to allow Texaco to process up to 200,000 bbl. in a year at its refinery next-door in Trinidad (where it is now refining Arabian as well as other oils).

The Oil Ministry's resolution on the case said the tax exemption would reduce operating costs in the Gulf of Paria, where activity is still considered exploratory.

The crude involved in the tax move would be drawn by Texaco as part of its share of offshore production of Paria Operations, Inc., which also includes Continental, Ohio Oil, Cities Service, and Richfield.

The industry regards the government's more realistic attitude in this case as an encouraging sign. But there's still no important tax relief in sight for the industry as a whole.

For some time now, Oil Minister Juan Perez Alfonzo has been holding out the possibility of tax concessions to stimulate exploration.

The government is preparing a tax reform bill for a special session of Congress that opens this month. But reports are that its proposals will be of little or no benefit to oil companies. The problem is that the government needs all the revenues it can get right now.

The tax relief for Texaco as a member of the Paria Operations group is a special case, because exploration is in offshore waters close to the international water boundary with Trinidad. The resolution, in fact, emphasizes the "national interest in development of this area."

Further, exploration results have not been highly encouraging in relation to the initial concession cost—a $100-million bonus—and the expense of offshore operations. The temporary tax exemption is aimed at giving Paria Operations time to carry out further exploration and to develop production.

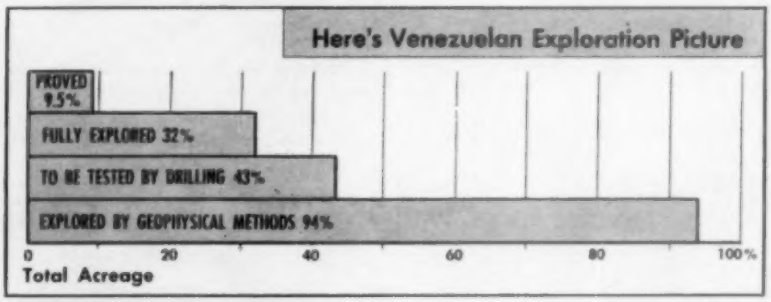
Thus far, Paria Operations has completed a total of eight producers, with published test rates ranging between 260 b/d and about 2,000 b/d, plus seven dry holes.

India Shows Why Local Refining Pays

Oil-importing India has come up with an indirect answer to exporting countries that are still pressing for more refining in producing, instead of consuming, areas:

According to India's latest official estimates, it has saved $62.5-million in scarce foreign exchange on its oil imports since refining was started there in 1955. This saving has already more than covered the $60.2-million foreign exchange outlay required to establish the three refineries owned by Burmah-Shell, Stanvac, and Caltex.

Oilmen, Ministry Debate Why Venezuelan Search Has Slowed



Source: Venezuelan Oil Industry Chamber

CARACAS—Venezuela's Oil Industry Chamber has challenged the Oil Ministry's opinions on the reasons for the decline in exploratory drilling in Venezuela.

In a survey recently published, the Chamber reported that 9.5% of Venezuelan lease acreage is proved, and 32% is fully explored. Of the total, 94% has been explored by geophysical methods, while 43% remains to be tested by drilling.

The survey was based on information from companies whose leases cover 97% of all Venezuelan concessions.

The controversy is significant because of its bearing on Venezuela's policy of no more concessions.

Oil Minister Juan Perez Alfonzo has often asserted that oil companies don't need new concessions because only 8% of their present acreage has been proved.

(The discrepancy between the industry's figure of 9.5% and Perez' 8% figure is due to recent turnbacks of unproductive leases.)

Commenting on the survey, the Chamber stated that in order to determine the area of concessions yet to be explored, "one cannot simply deduct the now famous 8% of 'proven areas' from the concession total."

A principal reason for the decline in exploratory drilling is the fact that oil companies have already explored the greater part of their concessions," the chamber declared.

"Proof of this is the recent acceleration in the rate of concession turnbacks," the industry group statement said.

But the Oil Minister argued that drilling has declined because of "excess production capacity."

Unproven acreage "cannot be dismissed so easily," Perez declared. Exploration is not completed until exploratory drilling, "the last and most important evaluation," has been completed, he said.

The chamber gave the following statistics, results of its survey:

- Of 12,988,932 acres of con-

cessions in effect on Mar. 31, 1960, 1,229,291 acres—9.5%—were proved.

- Some 1,850,275 acres—14.7% of the total—are retained by companies even though they are known to have no oil, because they are in concessions that include proved areas. (Venezuelan concessions are in parcels—around 1,235 acres usually—which must be leased or turned back as undivided units.)
- Some 2,822,205 acres, or 32.2%, are regarded as completely explored. Though not proved, this acreage is retained because (1) it contains reserves that may prove commercial at some future time, or (2) it is subject to final evaluation, or (3) it forms part of concessions not fully explored.
- Another 11,841,669 acres, or 94% of the total, is considered to be fully explored by geophysical methods.
- Some 5,465,142 acres—43.4%—remain to be tested by drilling.

In the first six months of 1960, 2.1-million acres were turned back because "all exploratory activities were carried out without positive result," the chamber said.

Among these leases were some acquired in 1956 and 1957 for $50-million, its report stated.

Soviet Seeks Bigger Slice Of Japanese Oil Markets

MOSCOW—The Russians are stepping up efforts to boost crude sales to Japan, but are making little headway so far, according to Japanese sources here in Moscow.

Soviet purchasing organizations, they point out, have been showing increasing interest in buying certain equipment from Japan.

And the Japanese—with a big industrial exhibition now under way in Moscow—are certainly willing to sell.

Oil is one of the few things the Russians have to offer in exchange that the Japanese need.

Russian oil sales to Japan could be boosted, directly or indirectly, by a new factor in the picture: a Russian pipeline that would permit exports from a Pacific port.

The pipeline is under construction from the Volga-Urals producing area, eastward to the Siberian city of Irkutsk. This, it is pointed out, would facilitate crude shipments by rail to a Pacific port. Informal arrangements are being made under which the Russians will buy tank cars from Japan if the Japanese will buy Russian oil of equivalent value.

"We in Japan are following with high hopes the construction of the Soviet trunk pipeline," Tokutaro Kitamura, a member of parliament, said recently in Moscow.

Kitamura, also chairman of the association for promotion of Japan's trade with the USSR, added: "Japanese businessmen are watching development of Siberia and the Soviet Far East with interest, since it is a potential market for Japanese industrial goods."

Soviet oil currently accounts for less than 10% of Japan's annual oil imports of $500- to $600-million.

This year, for example, Japan's imports of Russian oil are expected to total only about 1½-million tons. While the discounts the Russians have offered are big enough to cover costs of the longer haul from the Black Sea, Japanese sources here express the view that Japan's traditional suppliers can and will meet Soviet price competition.

DIRECT

PIPELINE TO THE WORLD'S OIL CENTERS

CARGO OR PASSENGER, IT'S KLM "THE OILMAN'S AIRLINE!"

From Houston: direct to Europe, Africa, the Near, Middle and Far East. **From Miami:** direct to South America. Daily service. **From Montreal:** direct to Europe, Africa, the Near, Middle and Far East. **From New York:** direct to all Europe and beyond; also to Curacao, Aruba and South America. **Important:** Your cargo receives rapid ground handling. Awkward shapes easily accommodated. **For passenger service:** Call your Travel Agent or KLM office. For cargo service: Contact your Cargo Agent, Forwarder or KLM office.

KLM Royal Dutch Airlines · 609 Fifth Avenue · New York 17, N. Y.

KLM ROYAL DUTCH AIRLINES

THE WORLD'S FIRST AIRLINE

What's New / AROUND THE WORLD

TURKEY—Mobil is now investing over $15-million in new marketing facilities in Turkey, through its affiliate Mobil Oil Turk A. S., Turkey's largest marketer.

The money is going for new service stations, storage depots, and transport facilities.

•

GHANA—The Russians are set to move into another African oil market under two new pacts signed with Ghana in Moscow last week.

One is a trade agreement that will include Russian oil products. The other is an economic and technical aid agreement, including geological prospecting, with a long-term Soviet credit of 160-million rubles (about $40-million at the official rate).

•

CEYLON—A government refinery plan may displace—once and for all—the long-standing refining proposal of four majors who market in Ceylon.

Ceylon has already been offered Rumanian aid for a state plant, which it currently favors over the joint bid of Stanvac, Caltex, British Petroleum, and Shell. Now Ceylon will send an official team to India to study the state plants being built with Communist-bloc aid, and to continue discussions with Rumanian diplomatic officials.

JAPAN—Demand for imported crude for the six months starting in October will be 99,313,200 bbl., according to estimates prepared by the Japan Petroleum Association for foreign exchange allocations. It figures an additional 14.6-million bbl. of fuel oil also will be required.

•

SPAIN—Esso has applied for an 885-sq.-mi. tract in north Spain, to add to the 1,350 sq. mi. in concessions it now holds.

INI, the government oil agency, has reported oil shows in the same area.

The Esso tract lies between INI Reserve Areas 3 and 4. General American Oil Co. of Texas recently applied for a tract to the west.

•

AUSTRALIA—Hunt Oil Co. and an affiliate, Placid Oil Co., have bought a 40-million-acre concession in Western Australia.

The firms secured the rights from Thomas S. Napier and Edwin L. Smart, Dallas drilling contractors, for a "cash consideration and an override."

The Dallas men also hold 6.4-million additional acres not affected by the transaction.

Mobil Tests New Turkey Site

Mobil last week spudded a wildcat 7 mi. southwest of its 1,200 b/d discovery near Adana (map).

The new test, No. 1 Chakit, will explore another structure in the mountainous area, which is within 40 mi. of Mersin, site of a 65,000 b/d refinery being built by Mobil and others.

In addition, Mobil expects to spud a stepout on the Bulgurdag structure, where the discovery was made, within two months.

The company has already spent $16-million on Turkish exploration, drilling three wildcats in the Adana area. The discovery, No. 1 Bulgurdag, was the third test.

IRAQ—The Czechs will supply equipment to Iraq for production of refinery spare parts and containers for LPG. Iraq will pay 10% of the $380,000 cost immediately, 40% on delivery, and the rest in installments. The plant will be completed in 15 to 18 months near the government's Daura refinery.

•

EL SALVADOR—A second refinery is now definitely slated for El Salvador. Esso last week announced its final decision to build an $8.5-million plant capable of producing over 8,200 b/d of products. Construction will start in 1961 at Acajutla, where Shell is building a 10,000 b/d plant, which in itself will provide a surplus for export.

•

GUATEMALA—Ohio Oil's second Guatemala wildcat has run into trouble at 10,090 ft., where it has a fishing job. This is near the same depth at which Ohio had to abandon its first test, 17 mi. to the southwest, for mechanical reasons. Continental and Amerada are participating in the current wildcat.

•

ISRAEL—The 16-in. Aqaba-to-Mediterranean crude pipeline was formally turned over last week to Tri-Continental Pipelines, Ltd. It was formed by foreign investors in hopes that the line will ultimately prove competitive with the Suez Canal for transit of Iranian oil to Europe (PW—Oct. 2'59,p34). Initially, however, throughput will be only 30,000 b/d, for refining at Haifa to meet domestic demand. Tri-Continental includes French, Swiss, U.S., British, and Israeli interests.

•

GUATEMALA — Delhi-Taylor Oil Corp. will take over as operator on northwest Peten exploration Rights Nos. 6 and 7, in which it recently acquired its stake from Texaco (PW—Jun.17'60,p66). Atlantic, Sun, and Pure are the others now sharing interests with Delhi-Taylor in the 1.3-million acres covered by the two tracts. Work so far has been confined to geological and geophysical operations.

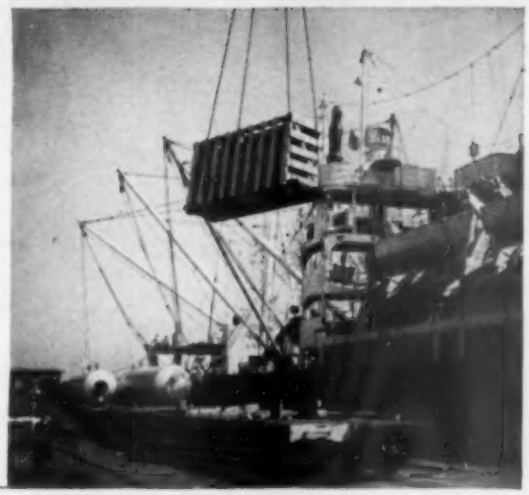
•

CUBA—The Shell assets seized by the Cuban government total about $47.8-million, the Royal Dutch Shell group said in its second-quarter report last week. The total includes $17-million in debts for oil supplied to Shell de Cuba.

Oct. 7 1960

PETROLEUM WEEK

OIL'S MOST READABLE MAGAZINE



special report FOREIGN OPERATIONS

The report on foreign operations, to appear in the October 7th issue of Petroleum Week, will discuss the challenges and opportunities overseas markets offer U.S. firms.

Personal interviews and correspondence with close to 100 equipment and supply firm executives, oil company management, and bankers knowledgeable in petroleum and foreign finance point up the following facts:

- *The petroleum equipment and supply business is good. Sales, generally, are up from the peak year of 1957.*
- *Despite the headaches of stiffening foreign competition and difficulty of obtaining long-term financing, concensus is that the market in foreign oil operations for equipment and supplies offers a far greater growth potential over the next ten years than the domestic market.*
- *The outlook in foreign operations is brightest for sales of expendables, and for refining and transportation equipment. Also, many heavier items, such as rigs bought in the boom years, will soon have to be replaced.*
- *One key to better export sales is better financing. Some of the suggested solutions for providing adequate long-term financing will be presented in the October 7th Petroleum Week.*

The report will make interesting and informative reading for both the men directly concerned with foreign operations and their associates at all levels and in all segments of the industry.

Advertisements for equipment and services in this issue are sure of receiving the attention of the men who make the decisions on using them throughout the world of oil. Be sure your products and services come to their attention along with this Petroleum Week editorial Special Report. Make your advertising space reservation NOW.

CLOSING DATE

for advertising space reservations

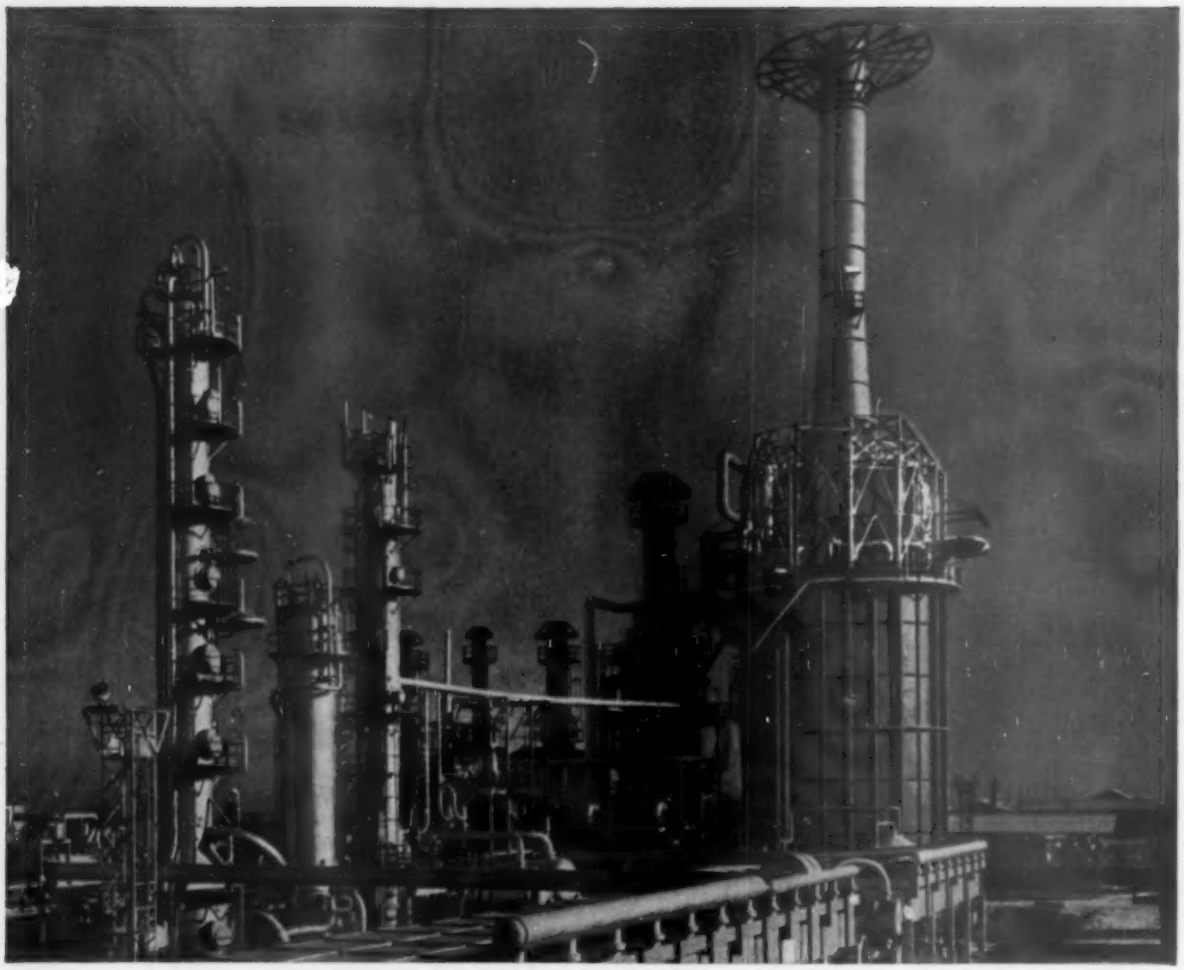
September 16th

PETROLEUM WEEK ABC ABP

Oil's Most Readable Magazine

LARGEST PAID CIRCULATION IN THE INDUSTRY

A McGRAW-HILL PUBLICATION • 330 W. 42nd ST., NEW YORK 36, N.Y. • LO 4-3000



176 million Btu/hr from a single vertical heater

The Foster Wheeler direct-fired heater above is the largest cylindrical vertical heater in the world. It was designed and built for the Powerformer section of a major French refinery.

This unusual unit features a 41-foot diameter fire box and a separate horizontal convection section. It has an overall height of 200 feet and is designed for high thermal efficiency with ease of operation. Foster Wheeler coordinated U. S. engineering and foreign procurement to assure minimum cost.

Designing efficient direct-fired heaters ranging in size from giants like this one—to midget-sized 100,000 Btu/hr units for special applications—has been a continuing FW function for over 40 years. You will find FW's fired heater and process experience invaluable to the solution of your heating problems.

Consult with Foster Wheeler before you specify. Foster Wheeler Corporation, 666 Fifth Avenue, New York 19, New York.

Heat Engineered products, plants and processes ... for the world's industrial progress.

FOSTER WHEELER

NEW YORK LONDON PARIS ST. CATHARINES, ONT.

Large-Still Goal: Economy, Not Volume

The size of the new crude still that DX Sunray Oil Co. will construct at its West Tulsa refinery (PW—Jul.29 '60,p39) was selected with a view toward improved economy rather than greater throughput: It was set at 85,000 b/d.

It will replace five small stills, having a total capacity of 75,000 b/d.

The contract for the new unit was awarded recently to Foster Wheeler Corp., New York, and construction will start soon. It is scheduled to go on stream late in 1961.

The estimated cost of the installation is in the neighborhood of $6½-million.

"We do not plan to expand our refining capacity," says Harry A. Brown, vice-president in charge of manufacturing, "until we can foresee an end to the economic situation which now exists throughout the industry."

Among the savings anticipated, overhead and fixed expenses are expected by Sunray to be about 25% lower than they would be for several smaller stills having the same total throughput.

The original equipment is still in excellent condition, but it has become obsolete in the light of modern technique.

The old stills will keep on operating during the construction period. Then—with a five- or seven-day time lag for the change-over—four of the stills will be dismantled. The fifth, with a 7,500 b/d capacity, will be retained for special distillation applications, Sunray says.

Fixed expenses that will be substantially lower with the new, larger, single unit are taxes, insurance, supervision, and overhead.

Says Brown: "With less mechanical equipment involved, supervisory requirements are reduced, and many safety hazards are eliminated."

But the greatest savings—on the order of about 60%—are predicted in the realm of repairs and maintenance.

"Labor costs," says Brown, "will be lower, since in general a still requires approximately the same number of operating personnel, regardless of its size.

"Furthermore, improved on-stream inspection methods that will be incorporated in the new still will necessitate fewer turnarounds, and the latest in modern control equipment will reduce processing costs to a minimum."

No problems are anticipated during turnaround periods, or in case of an accidental stoppage of the big still, since the refinery has adequate storage capacity.

The West Tulsa refinery has 542 tanks with a total capacity—for crude, partly processed products, and finished products—of 5¼-million bbl.

Storage capacity is ample to keep the refinery running for more than a week, with the still off-stream.

And prior to turnarounds, which will most likely take from seven to ten days, additional tankage can be converted to "unfinished products" storage, says a Sunray spokesman, to assure uninterrupted operation.

The new still is a three-stage distillation unit. It includes four major fractionating towers.

The largest furnace has a maximum heat-release capacity of 286-million Btu. per hour; the two smaller ones have capacities of 46-million and 31-million Btu. per hour, respectively.

The primary fractionating tower operates at approximately 35 psi. It is 18 ft. in diameter and 130 ft. high.

It is followed by two vacuum towers. In these towers, lubricating oil stocks, feedstocks for the cat cracker, and reduced crude are being fractionated.

The fourth tower is a stabilizer, which removes propane and butane from the straight-run gasoline coming from the primary tower.

Several changes and additions to the accessory equipment will be made, besides the actual still construction. Among those:

- A new cooling tower installation;
- A complete revision of the refinery's electrical distribution.
- New piping and tankage installation.

All this work will be handled by the company's own personnel.

No computer control is planned for the new still at present.

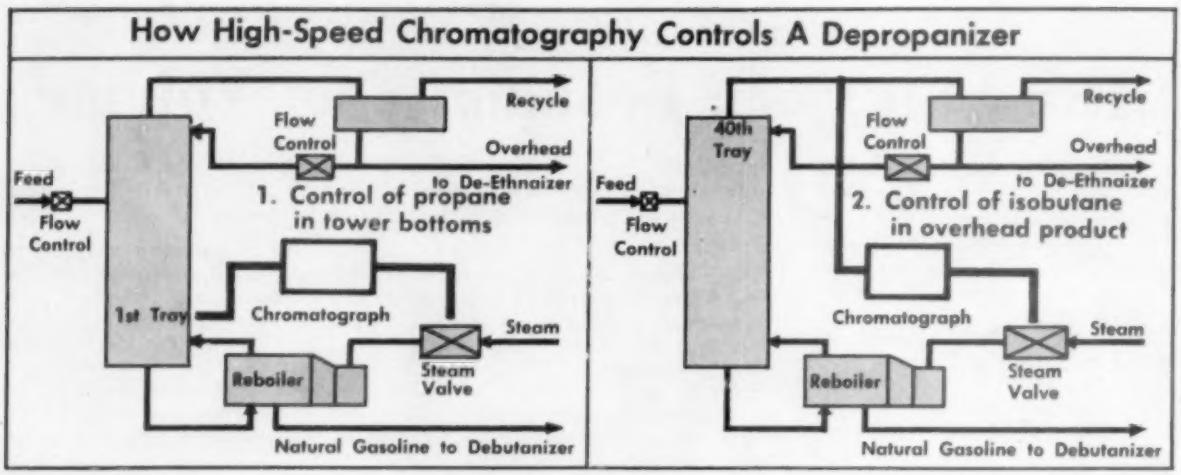
However, says Sunray, the installation will include the latest in electronic control devices. It can be expanded into a computer-controlled system later, if desired.

The other refinery equipment at West Tulsa is adequate to take care of any increased throughput that will result, later, from the installation of the new still.

Whenever economic conditions are such that the new still may be operated to its full capacity of 85,000 b/d, the following units are ready to handle its output:

- A 29,000 b/d cat cracker.
- A 9,500 b/d delayed coker.
- A 12,000 b/d Platformer.
- A 20,000 b/d Unifiner.
- A 2,500 b/d alkylation unit.
- A 2,000 b/d butane isomerization plant.

HF ALKYLATION PLANT is one unit of the recently modernized portion of the West Tulsa refinery of DX Sunray Oil Co. that will be fed by the new distillation still.



Faster Chromatography Improves Process Control

High-speed, automatic gas chromatography, with analyses performed in less than one minute, has now proved its effectiveness for the control of processes in the petroleum and petrochemical industries.

The new technique was developed by Phillips Petroleum Co. in cooperation with several manufacturers of gas chromatographs, including Consolidated Electrodynamics Corp., Greenbrier Instruments Corp., and Perkin-Elmer Corp.

The latest evaluation of the method was given this week at the Joint Automatic Control Conference of the Instrument Society of America, at the Massachusetts Institute of Technology, by H. J. Maier, of Perkin-Elmer.

Gas chromatography is a relatively new tool for process control. Yet it has proved in many cases to be superior to conventional methods.

Using the concentration of one, or several, components in a process stream for the control of the process has many advantages over the use of some physical variable—temperature, for instance—to accomplish this control. Among the advantages:

- The concentration of the components in a process stream is more positively correlated to the specification of the end product than is temperature. Less laboratory checking is therefore necessary to verify that correlation continuously.
- The chromatograph gives a more specific measurement—or peak reading—of the component selected.
- It has a high sensitivity.
- It is simple to operate.
- Less power, steam, and cooling are required, because the "margin of safety," generally adopted to minimize off-specification product, can be substantially reduced.
- The chromatograph allows for less "excess production," less reflux, and an end product in closer agreement with specifications.
- In new applications, less "overdesign" of equipment is necessary,

Heretofore, however, chromatography has had one serious drawback: It has been cyclic rather than a continuous operation.

Unlike the measurement of a physical variable, such as temperature, pressure, or flow, a chromatograph analysis requires that the various components of a gas stream be first separated, then measured (PW—May 8'59,p40). This takes time—several minutes as a rule.

Today, chromatography can be done so fast that the operation is practically continuous.

The heart of the chromatograph is the elution column, in which the gas product to be measured is separated from the rest of the stream. In the new, high-speed instrument, these columns are of a substantially smaller diameter than in conventional analyzers, and have much thinner walls. In addition, they are filled with packing material of 100- to 140-mesh, instead of the usual 30- to 60-mesh packing.

High-speed chromatographs that can analyze several components of a gas stream are available. But for most processes, a single-component instrument, which is simpler and less expensive, has been found satisfactory.

Consolidated Electrodynamics says that its high-speed chromatographs can handle as many as nine components. Greenbrier and Perkin-Elmer have used four. Beckman Instruments, Inc., makes a high-speed unit that can analyze up to six components.

In use, the single-component high-speed chromatograph can be applied to any desired tray of most fractionator or absorber columns.

Thus, it can monitor the light overhead product, the heavy bottom product, or that of any intermediate tray.

At Phillips, high-speed chromatography has been applied to depropanizer operation (diagrams, above). In one case the analyzer maintains constant the propane in the bottom natural gasoline—0.25% ± 0.5%. In another case, it maintains constant the isobutane in the overhead product going to the de-ethanizer—0.5% ± 0.1%.

Phillips has also applied high-speed chromatography to a furfural absorber in a butadiene recovery plant. Here the control component selected is the sum of butene-1 plus isobutylene in the stream at the level of the 26th tray of a 100-tray column.

Applications of high-speed chromatography are growing rapidly, using both single-component and multicomponent apparatus, Maier showed.

Among these applications are the control of the ratio of hydrogen sulfide to sulfur dioxide in sulfur recovery plants, and of the ratio of carbon monoxide to oxygen in catalyst regeneration plants.

And several manufacturers say they are currently studying the application of high-speed chromatography in conjunction with computer control of petrochemical processes.

How to Select Extrusion Polyethylene

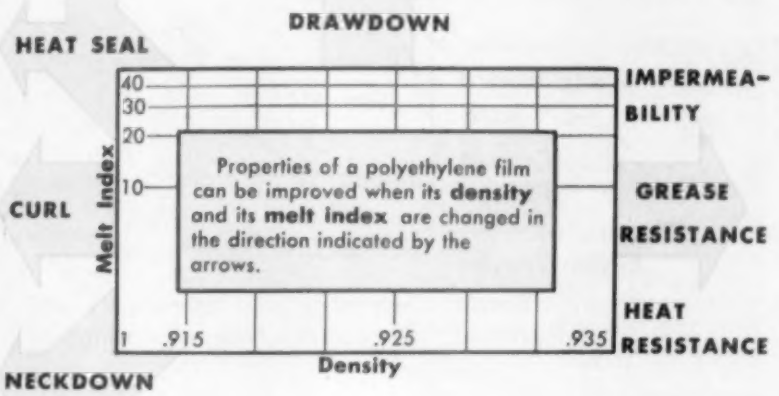
Selection of the proper type of polyethylene resin for use in making various extrusion films is simplified by a chart prepared by E. I. du Pont de Nemours & Co.

Roughly a third of all polyethylene made is extruded into films, sheets, and coatings.

For the benefit of the processors, manufacturers offer them today an enormous variety of polyethylene resins (PW—Aug.19'60,p59), with physical properties varying between wide limits.

The reason for such diversification is that certain properties that are of advantage for the manufacture of a certain film, may be of little value, or may even be detrimental, in another application. For example:

- Some packaging films must be impermeable to moisture and air, while others, intended for the packing of certain foods, must allow their contents to "breathe" slightly.
- Another film may require a great deal of "grease resistance."
- Heat sealing may be the essential requirement for still another film.
- When the film is intended to form a coating on paper, care must be taken to avoid "curling"—that is, the tendency for the coating to make the edges of the paper curl.
- Accurate thickness may be important for certain coatings, therefore "drawdown," or thinning down of the coating after extrusion, must be eliminated.



- Likewise, shrinkage, or "neck-down," should be avoided when a film must coat accurately a finished surface.

The chart shows the relation between the density and the melt index of polyethylene resins, and several of their essential properties. The "melt index" is a measure of the plastic's ductility at its extrusion temperature.

With the help of that chart (diagram, above), a processor knows in what direction he should look if he wishes to improve certain properties of his finished products. He can specify that his supplier give him a resin having the best combination of density and melt index for his particular application.

Other properties, important for specific applications of the polyethylene resins, are not as positively related to density and melt index; the manufacturer should be consulted. These include tensile strength, elongation, brittleness at low temperature, tendency to crack under certain conditions, stiffness, and hardness.

What's New / IN PROCESSING AND PETROCHEMICALS

To take care of growing demand for benzene, Enjay Chemical Co. is increasing capacity of its Baton Rouge (La.) benzene plant by 60%. The plant will produce 24-million gal. a year of benzene when construction is completed at the end of this year. Present capacity is 15-million gal.

•

Construction of Ethyl Corp.'s same-day-service gasoline testing laboratory is under way in the Los Angeles Basin refining area. Completion is slated for early next year.

The lab at Long Beach will test gasoline quality of samples from refineries on the West Coast, and will return results in one day. It will also be equipped to test diesel fuel for cetane number.

Ethyl's gasoline testing labs throughout the country supplement gasoline inspection tests performed by individual oil companies, and also develop data for Ethyl's nationwide gasoline quality surveys.

•

The Canadian Petroleum Assn. is taking steps to avoid sour-will over odors from gas processing plants that will be built as a result of new gas export projects.

CPA public relations groups are formulating a program explaining the safeguards against air pollution, the facts of gas processing, and the benefits it can bring to a community. The information will be given at gas plant area meetings beginning this fall.

Other CPA groups such as the special gas committee and the Alberta technical committee are at work on the problem in cooperation with several government departments.

•

A multimillion-dollar installation to produce phthalic anhydride and phthalate ester plasticizers will be built by Monsanto Chemical Co. at its new industrial site in Gloucester County, N.J. It will be in operation in early 1962.

New Cars Cut Down on Grease Jobs

Cadillac Lincoln Continental Ford	All recommend 30,000-mi. lube interval
Comet Falcon	Prelubricated metal bushings
Chevrolet Light Trucks	Self-lubricating nylon bushings
Buick Pontiac	Sealed-for-life lube points Greaseless torque bearings

The trend toward the so-called greaseless car will pick up momentum this month with the showing of Detroit's new models. The new Cadillac, for example, will carry a 30,000-mi. lube interval.

All bearing surfaces on this luxury car will be sealed at the factory with specially prepared greases. Suspension and steering joints will also be sealed for 30,000 mi.

This extended interval is actually much shorter than Cadillac engineers had intended to recommend. Originally, Cadillac was prepared to announce a greased-for-life car, but backpedaled even though tests suggested that the system would hold up indefinitely under all driving conditions.

Lincoln-Continental and the standard-size Ford passenger cars (including the Mercury) will also feature 30,000-mi. lube intervals.

Using a grease with a molybdenum disulfide base, each of these cars will carry lube systems that are sealed in with rubber and plastic seals.

Small threaded plugs, which are substituted for the regular grease fitting, are removed after 30,000 mi. to allow a special grease gun to be used in re-applying the lubricant to the surfaces. After repacking, the plugs are replaced.

Molybdenum disulfide grease is not compatible with common chassis greases, and therefore cannot be mixed with them. However, moly greases are unusually efficient by themselves. According to Ford, "Even if this grease is purposely wiped off, a tenacious film still clings to the surface, preventing a metal-to-metal contact."

Several other makes will feature lube-free innovations this year. Among them are Comet, Falcon, Chevrolet trucks, Buick, Pontiac, Oldsmobile, and Rambler.

- Comet and Falcon will have prelubricated, threaded metal bushings (or bearing linings) on the upper arms of the steering mechanism.
- On the Chevrolet "Corvair 95" series of light trucks, self-lubricating nylon bushings will be installed at the idler arm end of the throttle linkage.
- Full-sized Buicks will retain four conventional lube points, but the rest will be sealed for life.
- Pontiac's Tempest will have two torque-tube bearings that never need regreasing. They are a combination of nylon and ball bearings, encased in rubber.
- On the full-size Oldsmobile, the number of front-suspension lube points has been reduced from 12 to 4. No lubrication will be needed on the upper control arm of the steering shaft, which has permanently lubricated steel-threaded sleeves.
- Rambler will continue with its system of nylon bushings, now two years old. However, two new grease fittings requiring conventional service have been added, making six in all.

The reaction of oil marketers to this trend is mixed. Many of them pessimistically point to it as the beginning of the end for much of the service station's important source of revenue.

In some major oil companies, designers of service stations are already beginning to downgrade the importance of the lube bay. "Maybe we'll only need one bay now, where we might have needed two or three in the past," one major company architect told PETROLEUM WEEK.

Others find themselves resorting to the safety check as a device to motivate drivers into the lube bay, where precautionary maintenance will, it is hoped, lead to sales of parts and TBA products.

But other marketers are not disturbed by this trend in automobiles. In fact, they view the new lubeless bearings as an example of the increased complexity of cars—and the consequent need for skilled service.

Cadillac may be a case in point. The rebacking of Cadillac's lube system is so complicated that only special tools may be used, the company warns. For example, a special seal puller is required to remove the press-fitted umbrella seal on the steering linkage.

To guard against improper repacking, Cadillac has taken steps to have the jobs performed only by its own dealers. The special tools will be released only to these dealers. In addition, the nature of the greases will not be publicly revealed, and will be identified for Cadillac dealers by number.

Another indication of growing recognition of the need for skilled service comes from the auto mechanics themselves. In an initial attempt to upgrade the quality of garage and service station mechanics, the Independent Garage Owners of Michigan now requires that its members pass a certifying examination.

Novel Trading

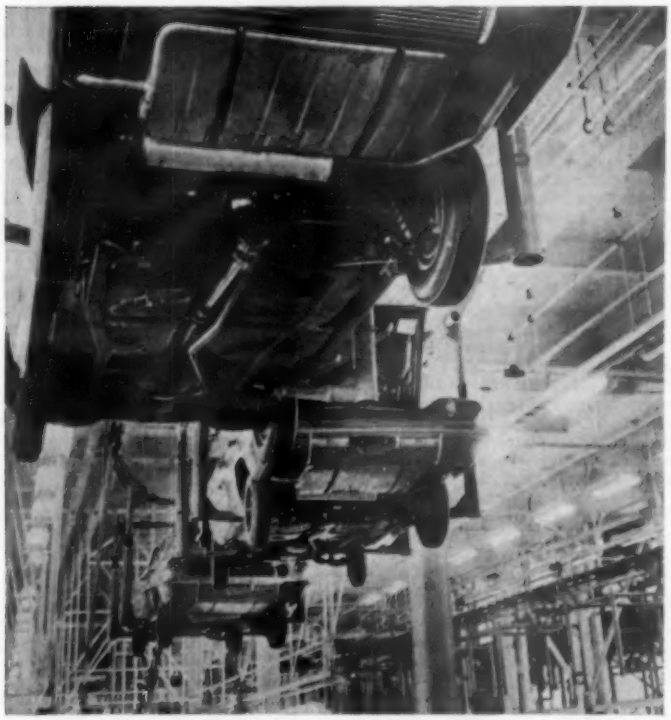
On the West Coast, where trading stamps are scorned by dealers seeking to "drive them out" (PW—Jul.22 '60,p45), Richfield Oil Corp. (L.A.) has introduced an entirely new stamp offer.

This new trading stamp plan differs from all other stamp offerings by excluding the customer from participation. Richfield's stamps are for dealers only.

The plan—called the X-Plorer Club—has encountered some opposition from dealers who are disgusted with trading stamps in any form.

A recent ruling by California's attorney general, Arnold Mosk, has touched off a flight from trading stamps in California, particularly among dealers who only six months ago took them on.

Cars to Be Sold Like Radios?



BUICK'S NEW COMPACT CARS, shown here on overhead assembly lines, move closer to the showroom. They're among the first compacts to be manufactured by a heavy division in Detroit. This broadening of models brings the auto industry closer to an era when "cars will be marketed like radios and refrigerators, in a variety of sizes for a variety of uses."

Stamps: For Dealers Only

The ruling does not affect Richfield's stamp offering, however, mainly because X-Plorer stamps cannot be interpreted as a discount off gasoline prices, which is the focal point of the attorney general's ruling.

In addition, X-Plorer stamps do not carry a cash value, nor can they be redeemed for cash, like consumer stamps.

Through the plan, Richfield seeks to push service station sales, particularly in TBA items, by giving stamps to dealers in proportion to the supplies they order.

Later, the dealers may redeem their stamps for consumer merchandise—just as motorists have grown accustomed to doing.

Those dealers who have become enthusiastic about the plan find that it provides a real inducement to their employees to increase their sales effort. (Dealers may purchase X-Plorer stamps from Richfield to use in their own employee incentive programs.)

Through unsolicited dealer testimony, Richfield has learned that the plan has helped to increase TBA sales at its service stations by as much as 38½% during the first six months of this year, compared to the same period last year. (The plan was introduced in February, but was made retroactive to January.)

One Richfield dealer, who also uses the stamps for pushing sales of motor oil and lube jobs, reports his motor oil sales have scored year-to-year increases of 15%, while lube jobs have been up 20%.

What's New
IN MARKETING

The Lincoln Continental will definitely carry a 6,000-mi. motor oil recommendation for 1961, oil engineers in Detroit have learned.

A spokesman for Ford in New York has confirmed the information but says that details cannot be released until Oct. 3—when the Lincoln models will be placed on display.

However, the oil company representatives have learned that special pains have been taken in the Lincoln to minimize wear. Every Lincoln Continental will be run three hours, inspected, and run another hour before being checked out by the company's engineers.

Careful fitting of tappets, valves, and camshaft bearings (similar to the care given to piston fittings) is part of Lincoln's plan to win the luxury market from Cadillac. In addition, the car will reportedly carry a 30,000-mi. warranty.

Ford Motor Co. had planned to extend the motor oil recommendations of Ford and Mercury to 6,000 mi., too, but decided to retain the present 4,000-mi. interval, acording to the oil engineers in Detroit.

•

Hawaiian service station dealers are pointing to the increased sales of small cars in the new state as the main reason for the fall-off in premium gasoline sales.

These sales have fallen from 56% of service station gasoline sales in 1957 to 51.8% during the first half of 1960. (This proportion is still high compared to the mainland, where premium comprises about 41½% of total gasoline sales at service stations.)

In Hawaii, compact cars now represent more than 52% of total new car sales, which is the highest state average in the country.

•

The average octane rating of premium gasoline fell 0.1-octane last month to 99.3, which is 0.2-octane below its March peak of 99.5. Meanwhile, regular gasoline increased 0.1-octane to 92.6, according to Ethyl Corp.

The present interval of 6.7 octane numbers between the two grades compares with an interval of 7.1 in August, 1959, and 7.3 a year earlier.

The actual octane ratings in August, 1959, were 99.2 and 92.1 for premium and regular, respectively.

MERRILL W. HAAS has been elected to the newly created position of vice-president for exploration for Humble Oil & Refining Co., Houston. He has been a vice-president and a member of the board of management of Humble's Carter division, in Tulsa. In his new position, Haas will be responsible to the Humble board of directors for all exploration activities. Haas, who joined Humble in 1933 as a research scientist, became a geologist for Carter in 1950. He was named manager of Carter's exploration department in 1956, and vice-president in 1957.

W. L. Harrington M. W. Haas

W. L. HARRINGTON moves from Casper, Wyo., to Calgary, Alta., as crude oil sales manager for Mobil Oil of Canada, Ltd. He was formerly district superintendent at Casper in Mobil Oil Co.'s pipeline department.

FRANK GAINES, JR., will join Humble Oil & Refining Co. as coordinator of executive development and organization planning at its Houston headquarters. His assignment is a newly created position in the secretary's department. Gaines is currently serving as production manager of the Carter division's eastern area, with offices in Mattoon, Ill. He will assume his new duties on Oct. 1.

A. J. JOHNSON, vice-president of the development and engineering division of Shell Development Co.'s Emeryville (Calif.) research center, will become vice-president in the company's head office in New York, around the first of the year. He will take over responsibility for Shell Development's licensing division, and will assist the president in various executive functions. **T. W. Evans,** vice-president, research, will become vice-president and general manager of the Emeryville research center. He will be responsible for all activities at the center except the patent division, which will report directly to New York.

CHARLES M. HUNTER, assistant general superintendent of Southern Natural Gas Co., Birmingham, Ala., has been promoted to general superintendent. He has been with the company since 1941.

E. C. SPROTTE is Shell Oil Co.'s new San Joaquin division geologist, with headquarters in Bakersfield, Calif. He was formerly geologist in the Pacific Coast area exploration department in Los Angeles, and before that he was district geologist and exploitation engineer at Shell's Long Beach division.

LESTER B. INGLIS, JR., formerly with United Fuel Gas Co., Charleston, W. Va., has been named assistant secretary of the American Gas Assn.'s operating section. He succeeds **Fredric Moshier,** who has entered private business. Inglis has served as an engineer in United Fuel's gas masurement department for the past four years.

RUSSELL E. HAYWARD is the new vice-president of King-Stevenson Oil, Ltd., King-Stevenson Oil Co.'s Canadian subsidiary, and the new manager of the parent's Canadian operations. Hayward was formerly vice-president and Canadian exploration manager for Alex W. McCoy & Associates, Inc. He has also been associated with Gulf Oil Corp., Mobil Oil Co., and Kern Oil Co. Hayward will be located at King-Stevenson's new Calgary office.

R. E. Hayward J. K. Lydecker

J. K. LYDECKER has been named exploration superintendent of the North Texas division of Sinclair Oil & Gas Co., with headquarters in Ft. Worth. He was formerly division geologist in the West Texas division at Midland. **A. D. Brixey, Jr.,** South Texas division geologist at Houston, transfers to the North Texas division. He will report to Lydecker. **R. P. Harder** succeeds Brixey as division geologist at Houston. **W. D. McEachin** moves to Tulsa to succeed Harder as executive assistant with the general staff geological department. McEachin was formerly division geologist at Ft. Worth.

S. T. BOGAN, JR., is the new controller of Cosden Petroleum Corp., Big Spring, Tex., succeeding **J. A. Selkirk,** who has resigned. Bogan, with Cosden since 1956, was most recently general accounting supervisor.

MYRTLE HEISE, secretary to the manager of Humble Oil & Refining Co.'s gas department, has been elected president of the Desk & Derrick Club of Houston for 1960-1961. Miss Heise, a member of the Houston club since 1952, is serving as first vice-president for the current year.

CHARLES A. ROTHFUS is the new executive vice-president of the Colorado Petroleum Council, succeeding **A. C. Bill Rose,** who has resigned to become western division manager of public relations for Sperry & Hutchinson Co., in San Francisco. Rothfus has been assistant secretary for the Kansas Petroleum Industries Committee, in Wichita, for the past two years.

MONTY G. MARTIN has been appointed manager, gas reserves, for Texas Gas Transmission Corp., Houston. He has been chief geologist since 1954. In his new position, Martin will be responsible for the estimation of all the company's gas reserves, of gas reserves under proposed contracts, and furnishing of data and information concerning drilling activity in the company's gas supply area.

JACK C. COOPER, assistant regional geologist for Continental Oil Co.'s southwestern region, is the new secretary of the Ft. Worth Geological Society.

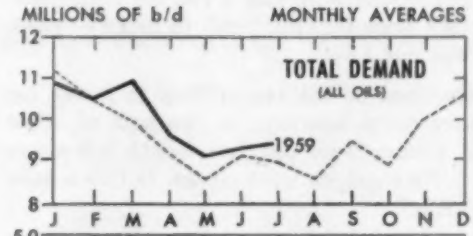
FRANCIS J. SITEK moves up to the newly created position of manager, operations, in the marketing division of The California Oil Co., subsidiary of Standard Oil Co. of California. The new operations section will take over Caloil's service station engineering, maintenance, and construction program in the East Coast states, will supervise operation of bulk plants, and will coordinate deliveries from the company's various marine and pipeline terminals. Sitek, with the California Standard organization for the past 14 years, was most recently manager of the stock control division in Socal's marketing services department.

F. J. Sitek J. C. Wilbourn

J. CASE WILBOURN transfers from the Esso Standard division of Humble Oil & Refining Co., in New York, to the Humble division headquarters in Houston, to become assistant manager of the marketing department. Wilbourn has been manager of Esso's New Jersey sales division since 1956. **Guy Mallonee,** formerly assistant manager of Esso's New York sales division, succeeds Wilbourn as New Jersey sales manager **Arthur A. Draeger** transfers from Houston on a rotational assignment as assistant manager of Esso's New York sales division, succeeding Mallonee. Draeger has been on a temporary assignment as acting manager of the northeast area of the Humble division's marketing department.

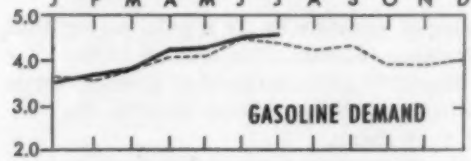
PETROLEUM WEEK'S

Fingertip Figures

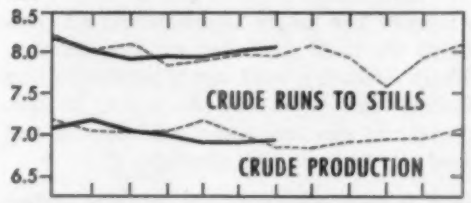


Figures for period ended Sept. 2, except as noted

TOTAL DEMAND
Latest 4-week average *
Year ago 8.945

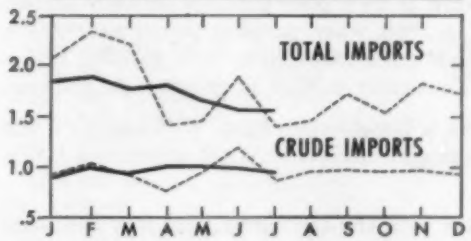


GASOLINE DEMAND
Latest 4-week average *
Year ago 4.381



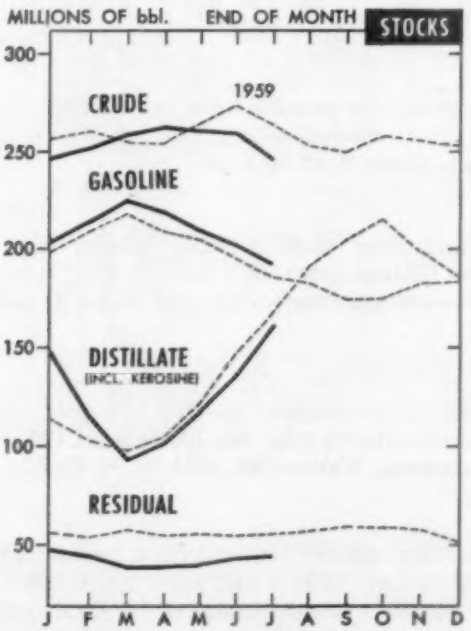
RUNS TO STILLS
Latest week *
Previous week 8.172
Year ago 8.132

CRUDE PRODUCTION
Latest week *
Previous week 6.846
Year ago 6.785



TOTAL IMPORTS
Latest week *
Previous week 1.469
Year ago 1.707

CRUDE IMPORTS
Latest week *
Previous week .897
Year ago 1.885



CRUDE STOCKS
Week-ended Aug. 27 236.2
Previous week 238.3
Year ago 253.4

GASOLINE
Latest week *
Previous week 190.7
Year ago 181.5

DISTILLATES
Latest week *
Previous week 181.3
Year ago 194.6

RESIDUAL
Latest week *
Previous week 45.3
Year ago 57.5

The refining binge that lasted all summer calls for leaner living on the part of processors. Estimates are that they should aim to keep crude runs at 7,950,000 b/d this month.

That's what Bureau of Mines economists forecast to be "adequate" crude throughput in September.

It is 73,000 b/d above the average for runs to stills last September.

The danger is that processors, like a fat person on a diet, might not be able to resist new excesses.

What may eventually hurt them is that, although gasoline stocks are an unwieldy 8-million bbl. higher than a year ago, prices are relatively snug.

This may make continued high runs look tempting.

Gasoline wholesalers say that prices have weathered the post-Labor Day period in good position, with no let-down in sight. But if demand sags later, so may prices.

Hopes ran high that motor fuel demand would hold up through September, but predictions now are that it will slip below a year ago.

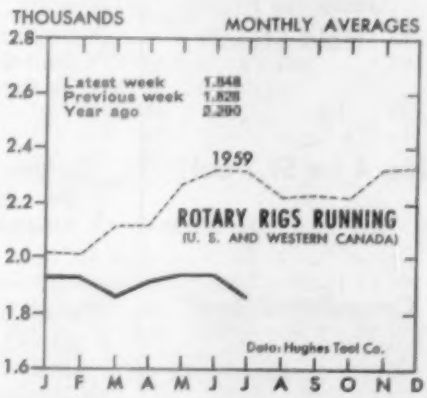
The bureau's forecast is that gasoline demand will average 4,395,000 b/d, compared with last September's demand of 4,403,000 b/d.

Crude will continue to be in tight supply in September.

If crude production is kept in line with demand forecasts of 6,980,000 b/d for this month, it's not likely that much will be added to crude inventories. They are now down to a slim 236.2-million bbl.

* * *

*Due to the Labor Day holiday, most figures for the week ended Sept. 2 were not available at press time.



The Market Trend

Cheap Gasoline for the Summer Olympics

ENI, Italy's state oil and gas agency, has taken another stiff whack at gasoline prices. This time the reductions were 1.2¢ a gal. for both regular-grade and premium. The agency's price for "mixture" (a blend of gasoline and oil for motor scooters) was cut 1.8¢.

ENI blamed the gasoline reductions on the recent drop in prices for Persian Gulf crudes. This will take some believing on the part of other marketers in Italy. Persian Gulf crudes were cut last month anywhere from 4¢ to 14¢ a bbl.—or maybe 0.25¢ a gal. on the average. Is this a good reason for cutting gasoline prices 1.2¢?

Last March, ENI cut the price of gasoline by 3¢ a gal., saying that cheap Soviet crude made the reductions feasible. This seemed at the time a very flimsy explanation (PW—May27'60,p48). Imports of Russian crude by Italy at that time were running only 13% of total imports. Russian crude may be cheap, but it's not that cheap.

The ENI move is certain to inflame the major international oil companies operating in Italy. ENI holds about 25% of the gasoline market, and can't be ignored. ENI very likely is hitting back again at the majors for the depressed state of the Italian fuel oil market. According to law, ENI's income from its Po Valley natural gas monopoly escalates up and down with the market price of fuel oil, f.o.b. coastal storage.

So the majors can look forward to very poor pickings on their Italian marketing operations this year. In 1959, when gasoline prices were much higher, some of the majors lost as much as $3-million. Now gasoline prices are 6¢ a gal. lower (the other 1.8¢ cut came in May by government decree).

The Italian market looks like a hopeless dogfight. ENI can sock the majors on gasoline. The majors can sock back on fuel oil, which hits ENI's natural gas income.

ENI may be buying character with the customers. The way it stands now, nobody else seems to benefit.

Propane Prices Are Advanced: Warren Petroleum advanced its prices for propane 1¢ a gal. on Sept. 1, and the move was followed by other principal sellers. This put Warren's contract price for propane, f.o.b. Group 3, at 5¢ a gal.

Gasoline Prices Hold Steady: Despite warnings from banks and other agencies about refinery runs, gasoline prices at refineries are holding remarkably firm. In fact, some Gulf Coast refiners look for renewed gasoline buying even as far ahead as October.

No. 4 for St. Paul: Northwestern Refining Co. submitted the apparent low bid to supply St. Paul, Minn., with No. 4 fuel. Northwestern's price was 10.33¢ a gal. Other bidders were Midwest Oil, Gustafson, Western Oil, and W. H. Barber.

Canadian Diesel: Canada's Dept. of Defence Production awarded Imperial Oil a contract to supply 6.3-million gal. of diesel fuel at 12.89¢ a gal., sales tax included. Delivery will be made to the agency's storage tanks at Ft. Churchill, Manitoba.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of September 2

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....12.25-13.25
- Gasoline, 92 oct reg....11.25-11.5
- Kerosine....9-10
- Heating oil, No. 2....8.25-9
- Gas oil, 48-52, d.i....8.5-8.875
- Fuel oil, bunker "C"....$2.30

Caribbean, cargoes
- Avgas, Grade 100/130....14.75
- Gasoline, 93 oct research prem....11
- Gasoline, 87 oct research reg....10.125
- Gasoline, 80 oct research....9.375
- Gasoline, 70-72 oct motor method....9.25
- Kerosine....9.25
- Heating oil, No. 2....8.125
- Gas oil, 48-52 d.i....8.375
- Fuel oil, bunker "C"....$2.00

New York Harbor, barges
- **Kerosine....9.9↑-10.3**
- **Heating oil, No. 2....8.9↑-9.3**
- Fuel oil, No. 6....$2.62

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg....12.5-13.25
- Kerosine....10.5-10.625
- Heating oil, No. 2....9-9.25
- Fuel oil, No. 6....$1.80-1.90

Chicago, bulk
- Gasoline, 92 oct reg....12.625
- Heating oil, No. 2....9.5-11.35
- Fuel oil, No. 6 high sulfur....7.65

Los Angeles, rack
- Gasoline, 88 oct reg....11.3-12.65
- Diesel fuel, PS 200....7.75-11.25
- Light fuel, PS 300....$2.80
- Heavy fuel, PS 400....$1.95-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3....4.5
- FOB Breckenridge, Tex....4

LP-Gas
- **Propane, Oklahoma (Group 3)....4↑-5↑***
- **Propane, Baton Rouge....4.625-5.625↑***

Pennsylvania Lubes
- Bright stock, 25 p.t....25
- 200 vis. neutral, 25 p.t....27

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....26-27
- Neutral, solvent, 200-210 vis....23-24

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....26
- Neutral, solvent, 200 vis....23

**Effective Sept. 1*

Eastern Hemisphere

Singapore (Pulau Bukom) cargoes
- Avgas, grade 100/130....15.5
- Gasoline, 79 oct research....9.125
- Kerosine....9.625
- Gas oil, 48 d.i. minimum....8.75

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9....$2.62-2.97
- North Dakota, 36.0-36.9....2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - West Texas, sweet, 36.0-36.9....3.00
  - West Texas, N.M., inter., 36.0-36.9....2.93
  - West Texas, N.M., sour, 32.0-32.9....2.71
  - East Texas, flat....3.05-3.25
  - Mirando, 28.0-28.9....2.96-3.31
- **Illinois Basin, flat....3.00↑-3.05**
- Pennsylvania Grade, Bradford dist., flat....4.80
- California, Signal Hill, 21.0-21.9....2.32
- North Louisiana-Arkansas, 36.0-36.9....2.72-3.02
- Wyoming, sweet, 36.0-36.9....2.85-2.90
- Wyoming, sour, 32.0-32.9....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.)....$2.38
- Leduc-Woodbend (Alta.)....2.53
- Redwater (Alta.)....2.42
- Steelman A (Sask.)....2.44
- Virden (Man.)....2.30

Venezuela (Cargoes, FOB lifting port designated)
- San Joaquin, 41.0-41.9, Puerto la Cruz....$3.10
- Oficina, 35.0-35.9, Puerto la Cruz....2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay....2.30
- Bachaquero, flat La Salina....1.85
- Tarra, 38.0-38.9, San Lorenzo....2.83
- Lagunillas Heavy, flat, La Salina....2.07

†Differential per deg. of grav. varies

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- **Arabia, 34.0-34.9, Ras Tanura....$1.76-1.80↓**
- **Safaniya, 27.0-27.9, Ras Tanura....1.46-1.47↓**
- Iran, 34.0-34.9, Bandar Mashur....1.74-1.86
- Iran, 34.0-34.9, Abadan....1.69-1.81
- Iraq, 35.0-35.9, Fao....1.68-1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.58-1.67
- Qatar, 41.0-41.9, Umm Said....1.91-2.05
- **N. Zone, Burghan, 23.5-24.4, Mina Saud....1.47↓**
- **N. Zone, Ratawi, 23.5-24.4, Mina Saud....1.40↓**
- **N. Zone, Eocene, 16.5-17.4, Mina Saud....1.27↓**

Middle East, Eastern Mediterranean
- **Arabia, 34.0-34.9, Sidon....$2.13-2.17↓**
- Iraq, 36.0-36.9, Tripoli, Banias....2.17-2.31

North Africa, Phillipeville, Algeria
- Hassi Messaoud, 48 and above....No quote

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- **U.S. Gulf-New York, clean..(USMC+10%) $3.14↑**
- U.S. Gulf-New York, dirty....(USMC—5%) $2.7
- **NWI-USNH, dirty....(USMC—60%) $1.10↓**
- NWI-UK/Cont., dirty....(Scale—52½) 15/7*
- **Pers. Gulf-UK/Cont., dirty. (Scale—60%) 25/10*↑**
- Persian Gulf-USNH, dirty....(USMC—70%) $3.8

**Sterling*

ADVERTISERS IN THIS ISSUE

Ajax Iron Works 22
Baroid Div., National Lead Co. 20
Black, Sivalls & Bryson, Inc., Oilfield Equipment Div. 10
Butler Mfg. Co. 25
Caterpillar Tractor Co., Engine Div. ..... Cover 3
Cities Service Oil Co. 7
Dowell ..... Cover 2
Foster Wheeler Co. 40
Halliburton Oil Well Cementing Co. 19
KLM Royal Dutch Airlines 37
Lone Star Steel Co. 30-31
Mission Mfg. Co. 33
Nordstrom Valve Div., Rockwell Mfg. Co. 35
Oil Center Tool Co. 4
Parkersburg Rig & Reel Co. 34
Petroleum Week 39
Pittsburgh-Des Moines Steel Co. 17
Reed Roller Bit Co. 26-27
Republic Nat'l Bank in Dallas 16
Sinclair Oil Corp. 1
Solar Aircraft Co. 28
Tex-Tube Inc. 2
Timken Roller Bearing Co. ..... Cover 4
Universal Oil Products Co. 8-9

Classified Advertising
F. J. Eberle, Business Mgr.

Employment Opportunities 51
Business Opportunities 51
Equipment Used or Surplus New For Sale 51

PETROLEUM WEEK REPRESENTATIVES

Atlanta 3 — R. H. Powell
1301 Rhodes-Haverty Bldg.
Jackson 3-6951

Boston 16 — David G. Sawyer
350 Park Square Bldg.
Hubbard 7-7160

Chicago 11 — Edward A. Callahan Jr.
520 N. Michigan Avenue
Mohawk 4-5800

Cleveland 15 — Marcus A. Loy, Jr.
1164 Illuminating Bldg.
55 Public Square
Superior 1-7000

Dallas 1 — James R. Pierce
901 Vaughan Bldg.
1712 Commerce Street
Riverside 7-9721

Denver 2 — J. W. Patten
Tower Bldg., 1700 Broadway
Alpine 5-2981

Houston 25 — D. O. Hanson
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 — Peter S. Carberry
1125 W. Sixth St.
Huntley 2-5450

New York 36 — David G. Sawyer
500 Fifth Ave.
Oxford 5-5959

Philadelphia 6 — H. Sherman Davis
6 Penn Center Plaza
Locust 8-4330

Pittsburgh 22 — Marcus A. Loy, Jr.
4 Gateway Center
Express 1-1314

San Francisco — William C. Woolston
68 Post Street
Douglas 2-4600

Tulsa 3 — J. A. Hartley
909 Enterprise Bldg.
522 South Boston
Gibson 7-5594

England, London E.C. 4 — E. E. Schirmer
McGraw-Hill Co., Ltd.
95 Farrington St.

J. J. Basch

W. A. Baltzell

J. JUSTIN BASCH has been elected second vice-president, and **WILLIAM A. BALTZELL** vice-president, of Oakite Products, Inc., New York. Basch, who joined Oakite in 1925, has been vice-president in charge of marketing since 1958. He will continue to be responsible for the company's marketing and research and product development programs. Baltzell continues as industrial sales manager, a position he has held since 1958. He joined the company in 1941 as a sales representative in Dallas.

EUGENE McDERMOTT, chairman of the executive committee of Texas Instruments Inc., Dallas, has been named to the Stevens Institute of Technology board of directors. McDermott is a 1919 Stevens graduate. He entered the oil exploration field in 1925, when he helped found Geophysical Research Corp., from which Texas Instruments evolved.

WELDON R. BURNS assumes the position of engineering manager of Badger Ltd., London, affiliate of Badger Mfg. Co., Cambridge, Mass. He joined the British affiliate following his assignment as project manager of the Esso Rotterdam refinery, recently completed by Badger N.V., The Hague. Burns has been with Badger since 1957.

TAAVI KAUPS heads Chicago Bridge & Iron Co.'s new engineering office in The Hague, recently established to assist its European subsidiaries and licensees. He was formerly a member of CB&I's general engineering department in Chicago.

HARRY W. FISHER, a senior research engineer for Rockwell Mfg. Co., Pittsburgh, has been named manager, central liquid meter products engineering. He will be responsible for all headquarters engineering activities relating to the company's petroleum, industrial, and water meter products. Fisher joined Rockwell in 1952, as a mechanical engineer, and was named senior research engineer in 1956.

C. P. GULLEY is in charge of the optical research, design, and manufacturing facilities of Seiscor, a division of Seismograph Service Corp., in Tulsa. He was formerly manager of optical and machinery research for Coburn Mfg. Co., Muskogee, Okla. Seiscor is currently building a new manufacturing plant in Tulsa. In addition to manufacturing optical systems for seismic instruments, Seiscor's instruments optics department will expand into manufacturing for other industries and for the military.

C. W. THURMON is the new salesman at the Shreveport (La.) sales office of Jones & Laughlin Supply Division. He joined J&L as storeman-advanced at El Dorado, Ark., in 1953, and has been salesman there since later that year.

DREW JOHNSON is in charge of Grant Oil Tool Co.'s new branch office in Kilgore, Tex. He was formerly Grant manager at Casper, Wyo.

BILL L. PROCTOR moves up from city sales representative in Oklahoma City for Republic Supply Co. to manager of its store there. Proctor has also been associated with National Supply Co. and Oil Field Specialties Distributors. **K. L. Maxwell,** formerly city sales representative in Denver, replaces Proctor as representative in Oklahoma City. Maxwell has been with Republic since 1955.

B. L. Proctor

L. M. Johnson

L. M. JOHNSON transfers to West Germany as a staff member of Universal Engineering, a new operating division of Deutsche Atlas Bradford, GmbH, in Dusseldorf. Deutsche Atlas is an expansion of Universal Inspection & Service Co., a division of Atlas Pipe, Inc., of Houston. Johnson was formerly with Universal in Houston. **Hellmut Reichenbacher,** a citizen of West Germany, who was recently with Royal Dutch Airlines, is also on the staff of the new division. Universal Engineering will offer complete nondestructive inspection and testing of oilfield tubular goods to customers in West Germany, France, Belgium, Italy and Great Britain.

DR. HORACE N. LANDER has joined Youngstown Sheet & Tube Co., Youngstown, Ohio, as assistant director of research. He will work under **Dr. Karl L. Fetters,** vice-president, research and development. Lander was formerly research supervisor for Jones & Laughlin Steel Corp.

KINDER CHAMBERS moves up from a district engineer to a staff service engineer in the drilling mud department, marketing division, of Magnet Cove Barium Corp., one of the Dresser Industries. He transfers from Houma, La., to Houston.

49TH STATE PETROLEUM REPORT
ALASKA'S
professional weekly oil and gas report on
DRILLING
EXPLORATION ACTIVITIES
FIELD PARTIES
ALL ALASKA OIL & GAS LEASE FILINGS
INDUSTRY INFORMATION
Complimentary copy upon request
ELECTRIC LOGS — MUD LOGS
COMPLETION REPORTS — MAPS
P.O. Box 1658, Anchorage, Alaska

PIPE
2,000,000 ft. 2"—5.50¢ to the feet
1,000,000 ft. 3"—7.70¢
1,000,000 ft. 4"—10.56¢
500,000 ft. 6"—15.80¢
200,000 ft. 8⅝"—28¢
400,000 ft. 10¾"—35¢
79,000 ft. 12¾"—40¢
10,000 ft. 18"—42¢
All No. 1 Grade Plain End and Cleaned.
INDIANA-OHIO PIPE CO.
P.O. BOX 5412 Sheperd Sts., Phone CL 5-1527
COLUMBUS 19, OHIO

For Information
About Classified Advertising
Contact
The McGraw-Hill Office Nearest You

ATLANTA, 3
1301 Rhodes-Haverty Bldg.
JAckson 3-6951
M. MILLER

BOSTON, 16
350 Park Square
HUbbard 2-7160
M. J. HOSMER

CHICAGO, 11
520 No. Michigan Ave.
MOhawk 4-5800
W. J. HIGGENS

CLEVELAND, 13
1164 Illuminating Bldg.
SUperior 1-7000
W. B. SULLIVAN

DALLAS, 2
1712 Commerce St., Vaughn Bldg.
Riverside 7-5117
J. GRANT

DENVER, 2
1700 Broadway, Tower Bldg.
ALpine 5-2981
J. PATTEN

DETROIT, 26
856 Penobscot Bldg.
WOodward 2-1793

HOUSTON, 25
Prudential Bldg., Room W-724
Holcombe Blvd.
JA 6-1281
GENE HOLLAND

LOS ANGELES, 17
1125 W. 6 St.
HUntley 2-5450
W. C. GRIES

NEW YORK, 36
500 Fifth Ave.
OXford 5-5959
H. T. BUCHANAN - R. P. LAWLESS
T. W. BENDER

PHILADELPHIA, 3
Six Penn Center Plaza
LOcust 8-4330
H. W. BOZARTH - H. NICHOLSON

PITTSBURGH, 22
4 Gateway Center
EXpress 1-1314
P. PIERCE

ST. LOUIS, 8
3615 Olive St.
JEfferson 5-4867

SAN FRANCISCO, 4
68 Post St.
DOuglas 2-4600
S. HUBBARD

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** EQUIPMENT USED OR RESALE

DISPLAYED RATE

The advertising rate is $16.75 per inch for Equipment and Business Opportunity advertising appearing on other than a contract business.

EMPLOYMENT OPPORTUNITIES

The rate is $28.00 per inch. Subject to Agency Commission.

UNDISPLAYED RATE

$1.00 a line. Minimum 3 lines. Box numbers count one additional line.

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

DISCOUNT of 10% if full payment is made in advance if four consecutive insertions of undisplayed ads.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—80 inches to a page.

Send NEW ADS or Inquiries to Classified Advertising Division,
PETROLEUM WEEK, *P. O. Box 12, New York 36. Issue closes 10 days prior issue date.*

Career Opportunity For Process Engineer

Planning and economics section. Graduate Chemical Engineer with 5-10 years refining experience for refinery organization, cost analysis and control, budget coordination, new project evaluation and long range planning for fuels, products and petrochemicals. Excellent benefits and promotional opportunities. Submit complete resume covering personal, educational and business background. Replies will be held in strict confidence.

TENNESSEE OIL REFINING COMPANY
A Division of Tennessee Gas Transmission Company, Industrial Relations Department
P. O. Box 2511, Houston 1, Texas

Career Opportunity For Process Engineer

Graduate Chemical Engineer having a minimum of 3 years experience in technical service for refining and petrochemical plant operations involving process design, studies of optimum yield and quality control, performance tests, economic analysis and project evaluations. Excellent benefits and promotional opportunities. Send complete resume of personal, educational and business background. Replies will be held in strict confidence.

TENNESSEE OIL REFINING COMPANY
A Division of Tennessee Gas Transmission Company, Industrial Relations Department
P. O. Box 2511, Houston 1, Texas

Career Opportunities For Sales Technical Sevice Engineer

Possessing experience and demonstrated ability in sales technical service, control of product quality, product application problems, maintenance of product specifications.

Excellent benefits and promotional opportunities. Send complete resume of personal, educational, and business background. Replies will be held in strict confidence.

TENNESSEE OIL REFINING COMPANY
A Division of Tennessee Gas Transmission Company, Industrial Relations Department
P. O. Box 2511, Houston 1, Texas

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

POSITION WANTED

Industrial Sales Engineer—32—ten years with major selling industrial petroleum products prefer to combine my interest in flying and sales. PM-5113, Petroleum Week.

BUSINESS OPPORTUNITY

Notice Investors, offering income producing Gas-Distillate royalty under 5 new, deep, dual completed, Frio sand wells on the Gulf Coast. Ogden Oil Company, P.O. Box 409, Ph. EL 2-2252, Taylor, Texas; Ph. HI 2-2417, Austin, Texas.

Concession Available
WILLISTON BASIN
800,000 acres in Western North Dakota and Northwest South Dakota.
NO DRILLING OR EXPLORATION REQUIREMENTS.
25¢ per acre annual rentals. No fear of expropriation. Will sell all or any part of spread. Call or write:

J. P. Murphy
Midland Savings Building
Denver, Colorado **TAbor 5-8662**

The Proper Way to Handle Prices

THE REASONING back of Ashland Oil & Refining Co.'s increase in crude prices last week in the areas where it is a purchaser is sound, and something that PETROLEUM WEEK long has advocated.

Just as President Everett F. Wells of Ashland said in announcing the increase, crude prices should rise and fall with product prices. There should not be the rigidity in prices that has existed since the Office of Price Administration froze postings at the start of World War II.

It's true that quite a number of increases followed the end of the war. But prices once again became rigid, at least as far as increases were concerned, until the boost in January, 1957. That was the raise that brought the ill-advised Alexandria (Va.) indictments, which were not supported by evidence. Complete vindication of the industry followed early this year in the trial at Tulsa.

TO EXPLAIN the Ashland action, Wells said, "These increases give expression to our strong conviction that crude oil prices should be sensitive to refined products prices, which, in our opinion, directly reflect any excess or shortage of crude oil supply available to refiners.

"Thanks to the realistic action of the Texas Railroad Commission in continuing to curtail the supply of Texas crude, refinery runs are now beginning to decline. This gives support to the recent advances of refined products."

Going even further, Wells expressed the opinion that the higher prices for products apparently will hold at least as long as crude production is kept under control. But, he added: "If products prices do not hold, it will be because there is still too much crude oil, either domestic or imported, available to refiners, in which case crude oil prices should then be reduced."

THAT IS THE WAY it should be. The producer should benefit from higher product prices just as he is penalized through lower crude postings when product prices decline. Derby Refining Co. and others in the Mid-Continent, which had reduced crude prices because of lower product prices, recognized this fact and restored the reductions when product prices turned upward.

There can be no other way if the domestic producing industry is to remain healthy and virile, which it must do in the interest of national security. This is particularly necessary in view of the unrest in many parts of the world.

engine power BY CATERPILLAR

THIS CATERPILLAR D397 DIESEL IS OPERATED BY FINGER TIP 122 MILES AWAY

The Cat D397 shown below is the sixth repeat order by this company's Pipeline Department. "The Caterpillar Diesel has reliability and economy that have proved to be very satisfactory for this pipeline application," says Division Superintendent V. J. Hansen.

This booster station on the pipeline system of a major midwestern oil company is located at Sauk Centre, Minnesota. It is remotely controlled from Moorhead, 122 miles away. It can also be controlled from any point on the system of leased telephone circuits.

Automatically controlled by dial code over leased telephone lines, this pumping station, powered by a Caterpillar D397, has a record of 99 per cent reliability.

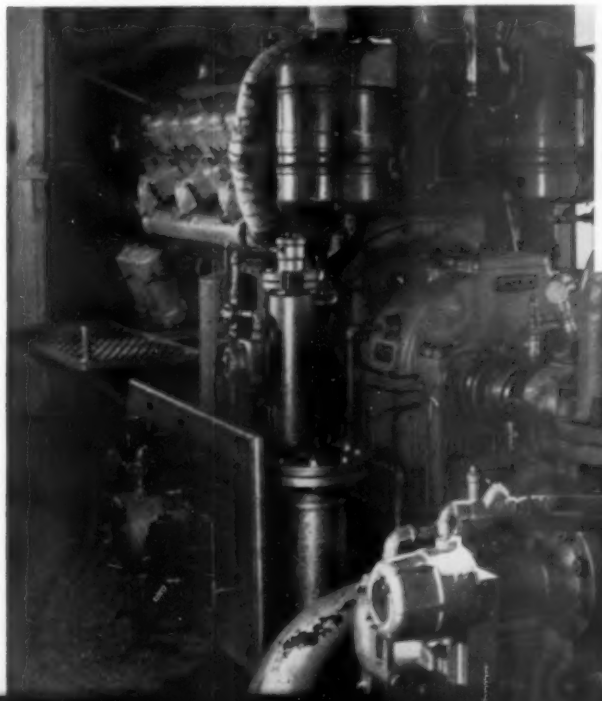
Diesel is preferred to electric power, first, because lack of electricity in the vicinity means high construction costs for the needed facilities. Second, with diesels, no standby or demand charges build up operating costs. And third, the better speed variability of diesels is more efficient for this installation because the station is downstream from a terminal that sometimes takes full receipts, sometimes only half and sometimes none.

The Caterpillar Turbocharged D397 Diesel is rated 650 maximum HP. This engine is also available in 7.5:1 and 10.5:1 compression ratio Natural Gas versions for extra economy where this low-cost fuel is available. Your Cat Dealer will recommend the right power for your job from the 75 HP D311 to the big D397. Call him today. And remember to specify Caterpillar when ordering new equipment.

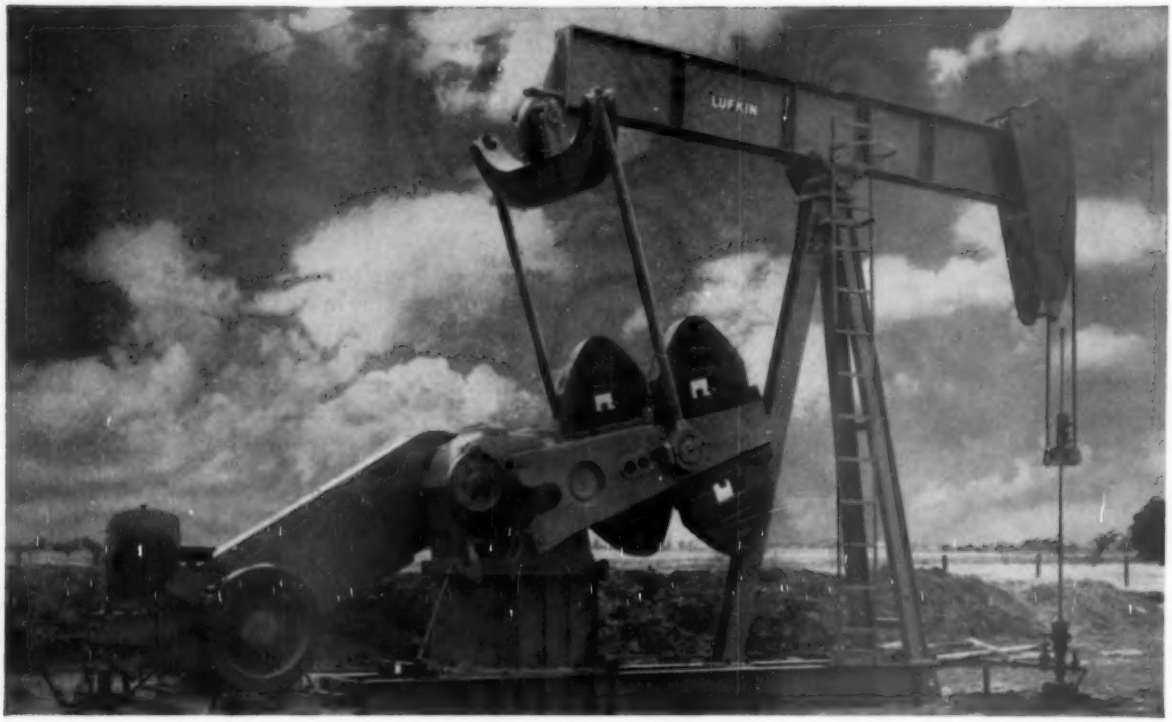
CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Engine Division, Caterpillar Tractor Co., Peoria, Ill.



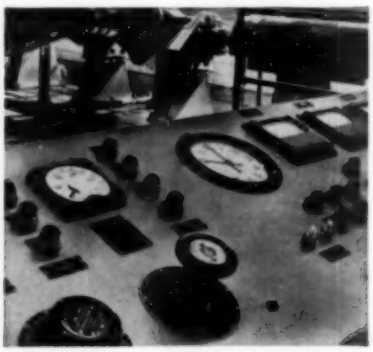
Lufkin reduces friction, cuts maintenance with Timken® bearings on pumping unit crank pins



Since oil field production equipment must run unattended for years on end, Lufkin Foundry & Machine Company engineers specified Timken® tapered roller bearings for the crankshaft and clutch of this engine and for the crank pins of the pumping unit. By using Timken bearings they eliminated shaft wear, crankshaft adjustment and minimized the oil seal problem.

Because Timken bearings hold shafts concentric with their housings, they make closures more effective—keep dirt out, lubricant in. Their tapered design enables them to take both radial and thrust loads in any combination. And because they're made of the finest bearing quality alloy steel available, they can stand up to the continuous, pounding, cyclic shock load of this equipment.

ON-THE-SPOT engineering service helps manufacturers solve bearing problems before they arise. Timken bearing sales engineers are experienced graduate engineers—the pros of the bearing business.



RESEARCH AND DEVELOPMENT, typified by the huge dynamometer above, help keep Timken bearings your No. 1 bearing value. The data it provides helps increase performance of Timken bearings.

BETTER-NESS rolls on

TIMKEN®

tapered roller bearings

The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO". Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits.